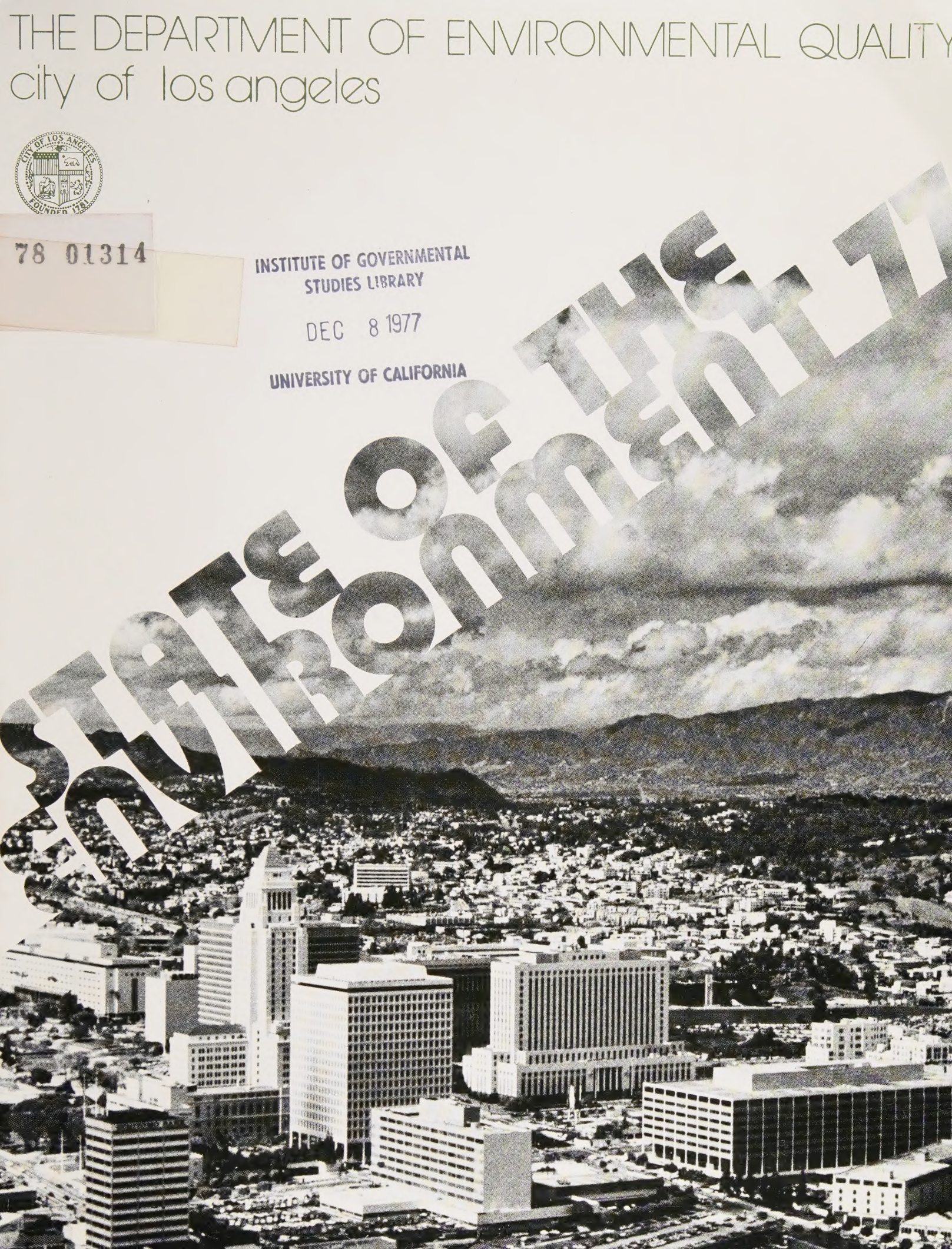
THE DEPARTMENT OF ENVIRONMENTAL QUALITY
city of los angeles

STATE OF THE ENVIRONMENT 77



state of the environment 1977

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Honorable Mayor
Honorable Members of City Council

The Department of Environmental Quality Presents
The State of the Environment Report for 1977

As this report is being readied for public release, the new national administration in Washington is demonstrating a strong bent for environmental protection and resource conservation. Through high level appointments, budget recommendations and public pronouncements a strong leadership role is assured. At the same time, the State of California is moving in a number of areas toward tough environmental controls and enforcement. As a result, it is evident that the City of Los Angeles must maintain strong environmental expertise within the City family, expertise able to cope with the myriad of regulations bestowed on the City and not tied to the often unbending ways of long time bureaucrats. Fresh ideas and a willingness to consider major changes are a necessity when dealing with higher levels of government.

The often heard cry for local control, must be accompanied by a responsible, determined and effective policy of environmental protection. Any other direction will signal the State and federal governments that the City will accept further preemption of environmental quality involvement.

In two chapters of this report, we compare recommendations and accomplishments in the field of environmental quality in the City of Los Angeles, and the activities of many City agencies in environmental enhancement, in their own words. These two sections make it clear that environmental quality programs are going forward on many fronts and yet we are often criticized for our lack of environmental concern. We must conclude that the very size, complexity and diversity of the City of Los Angeles creates a distorted image of this metropolis. An objective evaluation would find the City well above average in its environmental concern.

Certainly, not all is well in the City. Our very size, complexity and diversity require an intensive effort. Those forces which refuse to understand the problems of the environment and restrict their thinking to the economics of environmental protection, albeit false economics at times, to belittle or explain the need for opposition to environmental effort, should be exposed. The economic health of Los Angeles is unalterably tied to a healthy environment.

Two of the most serious deterrents to a more effective environmental quality program are the fears of the bureaucracy toward a little understood activity, and the misunderstood perception of what constitutes a highly desirable environment, depending on the context from which one operates, be it San Pedro or Chatsworth, Watts or Bel Air, Eagle Rock or Westchester. The priorities are different, and rightly so, depending on the values developed from the existing environment within which each of us functions. Los Angeles is made up of various forms and qualities as a community and its relevance results from this very diversity, creating vigor, strength and challenge. No one can dismiss the varied viewpoints existent within our City. This can and should be a strength to our citizenry. Only when illogical interference causes a distortion is the whole function placed in jeopardy.

The City Council, the Mayor -- the vital decisionmakers of the community, must lead in producing a City which challenges the statistics. It can be done, and fortunately Los Angeles has time. However, procrastination and delay is not possible on an indefinite basis.

The environmental quality program of the City will be facing increasingly formidable obstacles in the coming years. It is important that it be permitted to function in a fully objective manner without constraints brought on by subordination to mission-oriented activities in conflict with environmental findings. While this is not usual procedure for government, any other alternate would be folly. Whether it survives as a relevant dimension in the community will depend on the courage and determination of the City government.

I wish to personally thank the representatives of the many City and other governmental agencies, and the private sector, for their cooperation in assembling this document. Under the able editorship of Sam Campbell, the senior land use specialist in DEQ, we are presenting a document which will be referenced for many years to come.

Sincerely,

Jack Green

JACK GREEN
General Manager

C O N T E N T S

INTRODUCTION

This Report is, to our knowledge, the first report by any major city in the United States on the status of its environment. It is a summary of the actions since 1970 of the operating departments of the City of Los Angeles and related agencies to improve the environment and a description of the physical environment most affecting the citizens of Los Angeles.

The report can be used as a tool to measure accomplishment toward achieving the environmental goals of the City. It is available for reference by the Mayor and the City Council for their decisions affecting the City. It can be used by the Operating City Departments to assess their progress and by regulating agencies to monitor environmental activities. Equally important, the report is available to the community for use and comment. It is hoped that by indicating the accomplishments and problems of City Departments in coping with environmental issues, the public will better appreciate these efforts and will provide additional constructive comments and information for future reports. In particular we hope that educational institutions and the private sector will respond.

For the purposes of this report we have defined environment as the aggregate of physical and biological constituents of man's surroundings, and the social and cultural conditions that influence his life.

Realizing that there must be limitations on the length and complexity of the report, the decision was made to concentrate on the physical constituents, and to a degree, the biological. We have not attempted to embrace the social and cultural conditions of the environment that influence our lives. We have tried to avoid

duplication of detailed information reports already available to City officials.

The State of the Environment Report is divided into four sections. Chapter I discusses the problems of measurement and the state of the five principal components of the physical environment which most directly impact the citizens of Los Angeles: land use, air, noise, waste and water. In Chapter II the year 1970 is established as a benchmark for comparison with the present, since 1970 was the year the City published its report, "Action on the Los Angeles Environment" in response to heightened citizen concern over environmental issues. The recommendations made in the 1970 report and the City's response over the succeeding years are summarized. Chapters III and IV contain statements made by participating City departments and other agencies as to the progress they have made toward environmental improvement since 1970.

An initial effort in a subject area as all encompassing as "the environment" is certain to be incomplete.

This report is just a beginning.

CHAPTER I

THE ENVIRONMENTAL COMPONENTS

THE CHALLENGE: MEASUREMENT

Concern for the physical environment is not new. The naturalist, the geographer, the conservationist and others have long been cognizant of it. Nature study, the conservation of resources, the provision of national parks and forests are evidence of it. But the measurement of its many faceted aspects is only now being incorporated into a body of knowledge. And this has been the result of the comparatively recent pressures of an alarmed public, brought to an awareness of the limitations of our planet, the decrease in energy sources, the increase of pollutants, the adverse effects on our health and the extensive degradation of the physical environment. The Council on Environmental Quality has stated the problem well:(1)

> "Presentation of meaningful data on environmental quality conditions and trends is dependent on several important considerations that are currently satisfied only in part. We lack understanding of environmental phenomena sufficient to permit agreement on all the elements to measure and describe; we lack a

> comprehensive definition and evaluation of environmental data requirements and priorities; and technology is inadequate to permit collection of some types of data."

And the Council further states why such easurements are necessary:

> "One cannot detect environmental changes - desirable or undesirable, natural or man-made without established base lines and repeated observations. Such measurements are essential for the identification of environmental needs and the establishment of program priorities, as well as for the evaluation of program effectiveness, and they provide an early warning system for environmental problems which allows corrective action to be taken before the problems become serious."[1]

Perhaps the best measurements available to the City of Los Angeles are those respecting the quality of our air and our water. The constituents of the air of the Los Angeles Basin have been measured over the past two decades at several monitoring stations of the Air Pollution Control District. The quality of our fresh water is measured and controlled most accurately because, for the most part, it is imported and brought to the City via aqueducts.

Standards are many for the different uses of water: both fresh and ocean, for drinking, boating, swimming, or those for the water inhabitants themselves - the fish.

Air and water are all pervading - but how are we to describe the state of anything so fleeting as noise? It can be measured, of course, but the fact that it is extremely local in impact and, in most cases, of extremely short span and moving at varying speeds in other instances, make the description of it on a city-wide basis difficult indeed. Add to this the problem of vibration -- a jackhammer is more than noisy -- it sets up vibrations that rattle our teeth. There is need for much more work in these areas of the environment.

Much of the measurement of the foregoing has been dealing with the physical and chemical properties of air, water and sound and are in the realm of science. But how can indices be devised for that ubiquitous component, the land? Certainly we can measure land by instruments, but to what extent? Soil quality samples may be analyzed chemically, but how are we to assess a mountain side denuded of its trees or slashed by grading? What numerical value do we give to scenic areas without public access, or those degraded by visual pollutants? What is the environmental scale when comparing differing, or even similar land uses? For instance, we operate on the premise that parkland is better than no parkland; but is a big park more desirable than a little park? And how far away is it, for how many people? Will better accessibility bring more people to trample down the local ecology? It is evident that land quality indices are more difficult to devise than their counterparts for air and water, yet some progress is being made.(2)

Then take the problem of wastes. Is the best way to provide a measure of solid waste an index based on the number of acres of sanitary landfills? Then how about the community that spreads it in thin layers over many acres versus the one that fills deep and narrow mountain canyons? Does the fact that Los Angeles collects and disposes of 1,250,000 tons of residential refuse annually indicate that we are an excessively dirty -- or an exceptionally clean community? How do you quantify litter?

Aesthetics present serious problems of measurement. Where does squalor in the cityscape end and attractiveness begin? Can beauty be quantified when there are individual differences in perception?

The preceding has been set forth to indicate the complexities of the state of the art of evaluating the physical environment. It is to be hoped that much progress may be made in the ensuing years to develop measurements which will enable us to determine how much or how little the environment has changed, and in what direction, other than the time - worn standard so frequently used: the amount of money spent.

Measurements: Specificity vs Totality

This report exemplifies the vast and detailed knowledge and data that we have, and could obtain, about specific activities, projects, operations, etc., within the City. Other sections of this report indicate specific areas of accomplishment and progress related to environmental matters and, directly or indirectly, land use. Certainly every department or agency is competent in its specific "thing", be it building construction, engineering, utilities, traffic etc. But the total effect of a new project, development or operation on the totality of the environment is not known. Hitherto we have not been concerned with totality; specifics yes, but not the total.

Much of the knowledge that we have, and the progress we have made, has been in response to a crisis in the past. Realizing we were depleting our forests, we have tried to remedy that; when we had the "dust bowl" we tried farming practices which would prevent its re-occurrence. Now that we are finally aware of the results of polluting streams, something is being done. But all these, and others, have been in response to a crisis, and have been done "after the fact".

Measurements: After the Fact

Most measurements we have are "after the fact". Studies, research, reports are based, for the most part, on records, files, and information derived from the past; e.g. the 1970 census, the assessor's files, the Dun and Bradstreet business files, Health Department, Birth and Death Files. And many of our measurements are in averages. We derive averages that don't exist in real life, e.g. "the average family consists of 3.5 persons". In environmental, and many other areas, the average washes out the condition. The story is told of the "statistician who was drowned in a lake that averaged two feet in depth". Averages have the effect of cancelling out those who are being exposed to the extremes of conditions. Our concern for the environment must comprehend those extremes.

It is difficult to say how much existing data tell us about actual conditions because all data is filtered through a complex and very imperfect set of processes whose purpose is to describe the real world. Tables and graphs are not the real world. They are but the final outcome of selecting a few sampling sites from an almost unlimited number, collecting and analyzing the data on the basis of very inaccurate techniques, and then aggregating and statistically analyzing the collected data on the basis of a number of crude assumptions. How close the results of this process come to reflecting actual conditions is uncertain.(1) Assembly of the countless tables, graphs and maps which would indicate the state, in totality, of land use in the City of Los Angeles has not been attempted, and is beyond the scope, of this report.

Measurements: Before the Fact:

What is important to consider is that, within very recent years we have begun to develop "the knowledge and the art of anticipating the consequences of our acts. Environmental pollution, twenty years ago was scarcely thought of. In the past three or four years we have collected information, documenting changes, indicating trends".(3) The requirements of the National Environmental Policy Act have made us take measurements "before the fact". The Environmental Impact Report or Statement has forced us, for the first time, and for our own good, to "look before we leap" -- to evaluate the total environmental effect of what we do. It is the beginning of our understanding of what happens as we use our land; when we pave it over, making it impervious to water; when we channelize our streams, destroying riparian life; when we approve high density/high intensity development; when we locate a power plant, a freeway, an airport, an industry.

The environmental reporting process is new. The Environmental Impact Reports (EIR's) have been cumbersome, complex, time consuming, expensive and imperfect. But the process is more important than the specific EIR's and EIS's and the problems we have with them now. The details are amazingly good under the circumstances. They should be improved and perfected, and taken advantage of and built upon.

While we are groping for measures of totality, we have begun to measure individual projects through the impact reporting process. Each project in the City is being located and tabulated, with its data, on a geographical basis. Our "before the fact" data can be compared to our "after the fact" data; we are increasing our knowledge. We must continue to develop measures. Environmental measurements can foretell the results of our actions. For the first time in man's history, there is a concentrated effort to pre-determine the results of man's activities. Other creatures and living things have little control of their future, and trends can well foretell what may be their fate "but, wherever human beings are concerned, trend is not destiny".(3) "We have begun to realize that we have an opportunity and a challenge to determine the shape and future course of our development. The application of scientific knowledge and the continuing alteration of our physical surroundings are not predetermined. They are ours to mold and decide."(1)

The Role of the Land

The use of land functions as an intermediary between the land itself and the physical environment. Land use generates environmental effects, and can alter and change physical, social and cultural environmental conditions. The utilization of land by man or nature has an impact of some dimension on the environment, whether for good or for ill. From land use issues both benefits to, and pollution of, the air, the water, noise, wastes, aesthetics, and the land itself. So when we are seeking to control the source of pollution of whatever kind, we eventually return to its genesis, the use of land.

Generally speaking, man has used land indiscriminately. We have long been concerned about the quality of life -- but we have achieved that better quality through abandonment of "used" land areas, both urban and rural, and by expanding into "untouched" land. Thanks to cheap energy and the use of the automobile, we have worked and lived where we please, sprawled at will -- insensitive to environmental costs.

Only in the last several years has come the general realization that the improved quality of our life is going to have to be related to making intelligent choices among land use alternatives, and careful utilization of our many resources, most important of which is our land.

LAND USE:

The Land as it was:(4)

To better understand the role of the land in the environment that is Los Angeles today we should go back in time and visualize what was seen by the first settlers. At that time the area was covered by a mantle of natural vegetation that reflected in large part, the local variations in a climate characterized by mildness, a small annual-temperature range, winter rain and summer drought, abundant sunshine and freedom from severe storms. The many plant communities found in coastal lowlands, mountains and desert were responses not only to variations in the climatic elements of temperature and moisture, but also to differences in soil, drainage, slope and exposure.

Extensive grass lands of good pasture quality covered much of the coastal lowlands and valleys. Large live oaks were scattered over some of the more moist areas, and the stream courses were bordered by narrow stands of water loving trees such as sycamores, willows, and cottonwoods. Most of the area was unbroken grassland, green during the brief rainy season, golden brown the rest of the year. This was the area most attractive for agricultural and urban development. Today little of it remains in its natural state. In fact, even the apparently undisturbed areas have been altered by the early introduction of wild oats and mustard, now familiar items in the "natural" vegetation scene. Covering the steeper hillsides from the coast to interior mountain slopes which rise to an elevation of about 4,000 feet was a growth of evergreen shrubs and scrubby trees representing many species, but collectively known as chaparral. The light coastal sage scrub of the lower, dryer slopes, with chamise and sage

dominating. The denser, almost impenetrable "elfin forest" cover of wild lilac, scrub oak, sumac, and manzanita of the higher slopes. Alders, sycamore, and bay trees grew along the stream beds of the deeper canyons. Undeveloped mountainous areas of the City still retain this growth.

Less extensive plant communities of a highly specialized nature were found in the particular environments represented by the coastal dunes and sandy beaches, coastal salt marsh and fresh-water marshes. These have since all but disappeared.

The Area Today:(4)

Today an artificial, or man-made, landscape completely dominates the lowlands sections of the Los Angeles area. The urbanized portion alone occupies a large percentage of the total, with other concentrated economic activities likewise crowded into the area. This intensively developed urban area is made possible by the introduction of imported water from the Owens River, the Colorado River, and the Feather River, hundreds of miles away.

The City of Los Angeles covering 465 square miles and containing over 2,800,000 inhabitants, is surrounded by 100 smaller suburban cities, eight of which have populations exceeding 100,000. Some of these satellite cities are specialized industrial, resort, or agricultural marketing centers. Many are primarily residential (e.g. "bedroom" communities) from which thousands of commuting motorists drive daily to and from work.

This sprawling urbanized area, is characterized by the single-family residence, and the lowest population density of any large United States city. This is attributed partly to the newness of the City and it's construction almost entirely during the era of the automobile. But, ownership of one's own house, and yard, and garden, a goal toward which many an urban dweller had worked in the East, became a planning goal which was obtainable in Los Angeles. The Los Angeles area, with no rapid mass transit, but with three million automobiles

is more dependent on the automobile than any other metropolis. As a result, not only are residential areas widespread but commercial districts are decentralized and widely distributed. Manufacturing is widespread, and the "downtown" is less prominent than in the typical American city. Although a system of rail lines adequately serves the areas of heavy industry and connects the city with the outside world, railroads are used by passengers for long-distance trips only. There is virtually no commuting by rail, so common in older cities. Instead, an unsurpassed network of highways serves the millions of motorists, and superimposed on this is a vast system of freeways radiating from a central hub.

The industrial pattern in the area is likewise distinctive. Manufacturing is not crowded into a single factory district. Many of the local industries, such as aircraft manufacture, motion picture production, and oil refining, have enormous space requirements and hence are scattered and widespread. There are areas of concentrations of industry, but hundreds of small plants, independent of rail or sea transport, are scattered throughout the City. In order to fully comprehend the uniqueness of this city, it helps to take a look at the typical American city and the nature of its development over the years.(4)

The roots of the Eastern American city go back into the era of horses, carriages, and stage coaches. Urban areas were of relatively small size, both in area and in population. Such cities developed as highly-integrated units, centered around a business district. Activity concentration resulted in the phenomenon of high rise buildings which characterized these "central cities". Even in the suburbs the houses were constructed vertically to make maximum use of heat in winter and to utilize scarce land resources. Every morning, great numbers of employees traveled along the major arteries leading to the central area and each night they returned to their homes making way for night life characteristic of many central cities. Thus the life of the traditional city throbbed with a rhythmic pulsation.

Even where water barriers were interposed between suburb and center, the commuting pattern persisted, utilizing fleets of ferry boats, tunnels beneath the waterways or spider-webs of bridges above.(5)

Because such commutation was largely along radial lines focused on the city center, and because the population density was high, mass transportation was an economically sound enterprise, and most commuters travelled by public transit system: trolleys, busses, subways, elevated or standard railroads. The growth of the eastern city, furthermore, was a circumferential one, expanding the city outward, but always based about the same, fixed, static city center. Hence transit lines extended further outward to serve the growing city.

Los Angeles contrasts radically with this national urban pattern. Here we have a low population density. The city sprawls amorphously, with a widely dispersed pattern focused on no central core. No clearly-developed commuting pattern exists.(5)

It has been noted that virtually all the cultural elements of the landscape in the Los Angeles area are introduced. The people themselves are from elsewhere; each decade the new migrants outnumber the native born. The area has been a melting pot of people from all parts of the United States and the world, and with them have come the introductions in styles of living and in architecture that give it distinction.(4)

Architecturally the region, with its absence of climatic or traditional restrictions and its willingness to adapt and to experiment, has been described as the most exciting in America. The resulting rich variety of residential types is an amalgam of many cultural patterns: Spanish, English, Oriental, New England, and Southern Colonial.

Perhaps the most conspicuous of the introduced elements is the vegetation. Not only are the cultivated crops without exception alien to the region; most of the ornamentals have also been introduced, many of them from far corners of the

earth. To the recent arrival they seem bizarre. The local resident is apt to take them for granted, forgetting that in the built-up areas every tree that lines the streets or shades the lawns (except for an occasional California live oak or sycamore) has been planted by man and is likely to be of foreign origin.

The few citrus groves remaining are protected by wind breaks, rows of tall eucalyptus trees from Australia augmented by Monterey cypress. Along the City streets grow yellow-blossomed acacias from South Africa, feathery pepper trees from Peru, Formosan camphor trees or flowering eucalyptus. Palms include the tall spindly Mexican, the stout Canary Island variety, the graceful Cocos plumosa from Brazil, and a dozen other species.

Flowering evergreen shrubs too numerous to mention adorn the parks and yards. Among the more common ones are the ever-blooming hibiscus and oleander, and the showy camellia. Seldom are deciduous trees planted in abundance, but occasionally one finds a street lined with London plane trees, the familiar Eastern elm, or silver maples.(4)

Few single elements have done as much to change the local environment as has the introduction of foreign vegetation.

AIR:

The first reaction of most people in Los Angeles, when the quality of the environment is mentioned, is to think of air pollution. This is to be expected. We have had the problem for many years. It is well publicized across the nation and in many parts of the world. And, after all, we may be able to walk away from places where the quality of water and land has been degraded, or where the noise is unbearable, -- but we can't turn off our breathing. Air pollution strongly affects two of our five senses -- vision and smell. In addition, if its severe enough, we can taste it and feel the residues it leaves behind on buildings and furniture. Any form of pollution that has such an unfavorable effect on so many human senses is bound to have a strong impact on us.(2) To add to this dilemma is our increasing knowledge of air pollution's adverse affect on our health.

One of the great problems associated with any description of air quality is visibility. Not the visibility relating to particulate matter and the various gases making up smog, but the ability to bring clarity to the public's understanding of the state and measurement of this phenomenon in the City of Los Angeles.

Understanding is obscured because of several factors. First, we have three sets of standards for the several components of air quality, two federal and one state, and they have differences from one another both quantitatively and dimensionally.

Then, there are also measurements to trigger "episode alerts": instantaneous concentrations, measurements for one hour averages and for eight hour averages, and others. Further, some standards set early in the control of air pollution have been subsequently changed to more restrictive ones for the protection of health as our environmental research and knowledge progresses. This has led to an increase of designated "smoggy days", although in many cases the values of the absolute concentrations measured have shown improvement.

To add to the confusion, as far as the public is concerned, but a necessity for air pollution control engineering, is that two different sets of figures are used to describe air quality. First, we can measure the air quality with instruments, i.e., what is actually in the air (generally described as so many micrograms per volume of air). Second, we can estimate by calculation, knowing the number and emission rates of emitting sources, how much pollution we think we are putting into the air (generally so many tons per day).All this is necessary to confront the problem, study it, and provide solutions, but it complicates adequate comprehension on the issue. The following paragraphs indicate the progress in air pollution control to date:

AIR QUALITY TRENDS

The unusually sharp drop in contaminant levels which occurred during the 1972-73 fiscal year is partially attributable to weather conditions in the Los Angeles Air Basin which were more conducive to good ventilation (i.e. high inversions) than those during any other similar period in the past 25 years. During the 1973-74 and 1974-75 fiscal years a more complex picture occurred in relation to air quality trends but nevertheless the overall trend is one of continuing improvement for various pollutants as shown below.

Ozone (O_3)

In the past, an instantaneous ozone (oxidant) concentration of 0.5 ppm was used to trigger first stage alert actions in Los Angeles. In 1955, for example, 0.5 ppm of ozone (O_3) was reached 15 times. During the 1973-75 biennium (two year period) there were no ozone concentrations of this magnitude. However, it now requires an ozone concentration of only 0.2 ppm averaged over a one hour period to trigger what is now called a "Stage I Episode" level. Therefore, public announcement of the prediction or attainment of a State I Episode level is made more frequently, but only because of the lower ozone concentration designated. On this basis, during the 1973-1975 biennium, the Stage I

Episode level was attained on 156 days in the Los Angeles Air Basin, compared with a total of 176 days on which the same ozone concentration was reached for the 1971-1973 period.

Total number of days for recent individual years on which the State air quality standard for oxidant (ozone--0.10 ppm averaged over one hour) was exceeded in the Los Angeles Air Basin was as follows:

1973-74	211 days
1974-75	197 days

These figures were lower than any previous fiscal year except 1972-73 which had better ventilation associated with meteorological conditions. The two-year total was far lower than the long-term biennial average of 494 days.

The even more stringent Federal oxidant air quality standard of 0.08 ppm (averaged over one hour) was exceeded in the Los Angeles Air Basin on 442 days during 1973-75, a slight increase over the previous biennium (429 days) probably due to meteorological factors.

Oxides of Nitrogen (NO_x)

Another encouraging trend has been the continued decrease in the number of days on which the State's NO_2 standard (0.25 ppm averaged over a one hour period) was exceeded. This pollutant, a product of the same series of photochemical reactions which produce ozone (O_3), as well as a product of combustion, is finally being reduced due to the emissions control program. In the 1973-74, 1974-75 biennial period, the standard was exceeded on 130 days in the Los Angeles Air Basin compared to 180 days in the previous two-year total. The Federal standard for NO_2 is 0.05 ppm (calculated as an annual arithmetic mean, based on the calendar year). In the Los Angeles Air Basin, this standard was exceeded at all monitoring stations during the calendar years 1973, 1974, and 1975. However, the percentage by which this standard was exceeded has dropped consistently.

Carbon monoxide (CO)

The number of first stage CO alerts (instantaneous value of 50 ppm) during 1973-74, 1974-75 was five. No second or third stage levels were attained. The new "Stage I Episode" level is 40 ppm averaged over one hour. No clear trend for alerts is evident from December 17, 1970 when the present more stringent episode level was adopted. There was, however, a small decrease in the number of days the State ambient standard was exceeded: 259 days in 1971-1973 and 251 days in 1973-74, 1974-75.

There are two Federal air quality standards for CO, one based on 8 hours, the other on 1 hour. The first is 9 ppm averaged over 8 hours. A decline each year since fiscal 1971-72 is shown in the number of days this standard was exceeded during that period:

1971-72	184 days
1972-73	168 days
1973-74	166 days
1974-75	155 days

The other standard is 35 ppm averaged over one hour. The number of days this standard was exceeded during the same years were:

1971-72	3 days
1972-73	7 days
1973-74	18 days
1974-75	7 days

This second standard may not be as reliable an indicator of the actual CO trend as the one based upon the longer (8 hour) averaging period because the number of days with very high levels of CO is dependent to a large extent upon the number of days with strong, low temperature inversions during the winter months. This is also true for the number of CO alert/episode days.

Sulfur dioxide (SO_2)

The number of days the State sulfur dioxide standard (0.04 ppm averaged over 24 hours)

was exceeded in the Los Angeles Air Basin during 1973-74, 1974-75 was 136, a decrease from the 184 days recorded in the previous biennium. The less stringent Federal standards were not exceeded at any time in Los Angeles County in this biennial period, nor were they in the previous biennium. Continuation of the downward trend in the future is dependent almost entirely on the future availability of natural gas and very low-sulfur fuel oil for use in Basin power plants. SO_2 levels will increase as industries switch over from natural gas to fuel oil.

Particulates and Visibility

Suspended particulates showed a continuous down trend in 1973-74, 1974-75 when compared with one of the Federal primary air quality standards (260 micrograms per cubic meter of air measured over a 24-hour period). The standard was exceeded in the Los Angeles Air Basin on the following percentage of sampling days: (FY 1971-72) 24 percent; (FY 1972-73) 12 percent; (FY 1973-74) 11 percent; and (FY 1974-75) 1 percent. Compared with the other Federal primary air quality standard (annual geometric mean of 75 micrograms per cubic meter of air, based on calendar year), the trend is also downward. During both 1971 and 1972, this standard was exceeded in the Los Angeles Air Basin by 65 percent; during 1973 it was exceeded by 40 percent and in 1974 by only 20 percent.

In terms of their effect on visibility, suspended particulates showed virtually no change. The number of days the State visibility standard was exceeded was 609 days or 83 percent of the time in the last two biennial periods, i.e., 1971-72, 1972-73 and 1973-74, 1974-75.

Hydrocarbons (non-methane HC)

The Federal air quality standard for smog producing hydrocarbons (a 3-hour, 6-9 a.m. average of 0.24 ppm) was exceeded in the Los Angeles Air Basin on virtually every day of the 1973-75 biennial period just as it was in the previous biennium. In contrast, the standard was

exceeded on about 80 percent of the days during this biennium in the Upper Santa Clara River Valley and on 40 percent of the days in the Antelope Valley. There is no State standard for this pollutant.

Maximum Contaminant Concentration Trends (Peak Values)

Another criterion used in evaluating contaminant concentration trends in the Los Angeles Air Basin is to trace the occurrence of peak values (instantaneous maxima) for each year. The record is as follows:

TABLE 1

PEAK VALUES, PPM,* IN LOS ANGELES BASIN

Pollutant	1971/ 1972	1972/ 1973	1973 1974	1974/ 1975
Ozone	0.65	0.57	0.49	0.37
Carbon monoxide	65	62	61	57
Nitrogen oxides	2.46	1.98	2.16	1.88
Sulfur dioxide	1.08	1.67	0.47	0.35
Total hydrocarbons	22	19	20	20

* Parts per million

All the above contaminants have displayed downward trends from 1971 through 1975 in the Los Angeles Air Basin with the exception of total hydrocarbons which exhibit no clear trend.

The air quality levels for the various State measured pollutants are as follows:

TABLE 2

Number of 1st Stage Alerts* In Los Angeles Basin

POLLUTANTS	ALL TIME HIGH, YEAR	AVERAGE OVER YEARS ‡		1973-74 ‡	1974-75 ‡
Ozone (0.5 ppm instantaneous)	17 (1955-1956)	4 (20 yrs.)	>	0	0
Carbon monoxide (50 ppm instantaneous	3 (1973-1974)	2 (5 yrs.)		3	2

* There were no second stage alerts
‡ Based on identical criteria, i.e., normalized criteria
> Greater than

The reader should be aware that Table 2 uses 0.50 ppm ozone (instantaneous) for the normalized criteria whereas Table 6 uses a lower "triggering" level of 0.20 ppm ozone (one hour or longer). Therefore, first stage alerts are now triggered at lower absolute levels of oxidant, and are triggered more often than shown in Table 2.

TABLE 3

Number of Days State Air Quality Standards (In Effect June 1975) Were exceeded in Los Angeles Air Basin †

POLLUTANTS	All Time High, Year	Average Over Years		1973-74	1974-75
Ozone (0.10 ppm av. 1 hr.)	329 (1958-1959)	247 (20 yrs)	>	211	197
Sulfur dioxide (0.04 ppm av. over 24 hrs)	330 (1956-(1957)	110 (20 yrs)	>	88	48
Carbon Monoxide (10 ppm av. over 12 hrs)	366 (1963-* 1964)	259 (20 yrs)	>	128	123
Nitrogen dioxide (0.25 ppm av. over 1 hr)	130 (1970-1971)	91 (19 yrs)	>	73	57
Suspended particulates (100 microgram per m^3)	347 (1967-1968)	330 (19 yrs)	>	310	299

* Exceeded daily for the five-year period July, 1962-June, 1967
† Based on identical criteria
> Greater than

TABLE 4

Number of Smog Days, Moderately-Heavy (Based on Ozone Greater Than 27 pphm)* In Los Angeles Basin

LOCATION	All Time High, Year	Average Over Years		1973-74	1974-75
Los Angeles Air Basin	186 (1955-1956)	93 (20 yrs)	>	36	26

* pphm = parts per hundred million.

27 pphm = 0.27 ppm

> Greater Than

TABLE 5

Maximum Concentration In Parts Per Million Parts of AIR (PPM) In Los Angeles Basin

POLLUTANT	All Time High, Year Av. (# yrs)	Average Over Years		1973-74	1974-75
Ozone	0.75 (1955-1956	0.60 (20 yrs)	>	0.49	0.37
Sulfur dioxide	2.49 (1956-1957	1.13 (20 yrs)	>	0.47	0.35
Carbon monoxide	78 (1968-1969)	66 (20 yrs)	>	61	57
Nitrogen di-oxide	1.73 (1953-1954)	0.86 (19 yrs)	>	0.75	0.83
Nitric oxide	3.50 (1960-1961)	1.85 (17 yrs)		1.97	1.73
Oxides of Nitrogen	3.93 (1960-1961)	2.10 (17 yrs)		2.16	1.88
Hydrocarbons as Methane	40 (1963-1964)	25 (13 yrs)	>	20	20

> Greater than

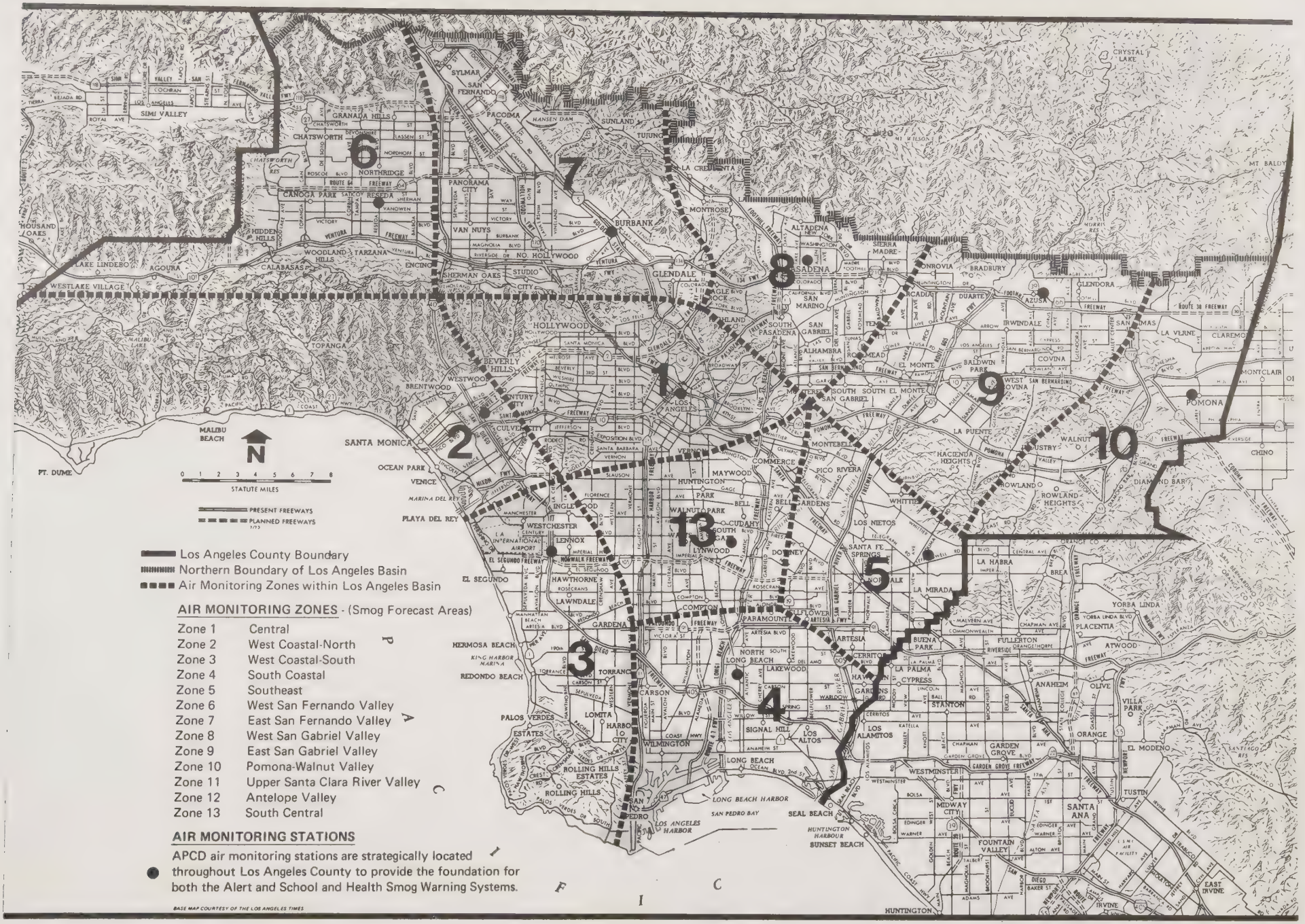
N
0 1 2 3 4 5 6 7 8
STATUTE MILES
PRESENT FREEWAYS
PLANNED FREEWAYS
Los Angeles County Boundary
Northern Boundary of Los Angeles Basin
Air Monitoring Zones within Los Angeles Basin
AIR MONITORING ZONES - (Smog Forecast Areas)
Zone 1 Central
Zone 2 West Coastal-North
Zone 3 West Coastal-South
Zone 4 South Coastal
Zone 5 Southeast
Zone 6 West San Fernando Valley
Zone 7 East San Fernando Valley
Zone 8 West San Gabriel Valley
Zone 9 East San Gabriel Valley
Zone 10 Pomona-Walnut Valley
Zone 11 Upper Santa Clara River Valley
Zone 12 Antelope Valley
Zone 13 South Central
AIR MONITORING STATIONS
APCD air monitoring stations are strategically located throughout Los Angeles County to provide the foundation for both the Alert and School and Health Smog Warning Systems.
BASE MAP COURTESY OF THE LOS ANGELES TIMES

TABLE 6*

Number of 1st Stage Alerts Based on Ozone Level Reaching 0.20 PPM for One Hour or Longer

AREA	1970		1975	1976
West San Gabriel Valley †	115	>	51	51
East San Gabriel Valley	119	>	54	46
East San Fernando Valley †	48	>	13	43
Pomona-Walnut Valley	96	>	42	38
West San Fernando Valley †	45	>	38	32
Southeast	31	>	7	18
Central L.A. †	12	>	10	11
West Coastal - North †	4	=	0	4
West Coastal - South †	4	>	0	1
South Coastal †	0	=	0	0

* Table is rank-ordered with respect to air quality
> Greater than
† Includes parts of the City of Los Angeles

The general improvement in the first stage alert situation is evident. It should be noted that Table 6 uses 0.20 ppm ozone (one hour or longer) rather than 0.50 ppm ozone (instantaneous) used in Table 2. This downward change in the criteria standard now triggers first stage alerts (called "Stage I Episode" levels) at lower absolute levels of oxidant.

TABLE 7*

Number of Smog Days (Based on Ozone Reaching 0.10 ppm For One Hour or Longer) For Los Angeles Air Basin

AREA	1971	1972	1973	1974	1975	1976
East San Fernando Valley (includes Burbank, Glendale †	153	152	123	146	143	187
West San Gabriel Valley †	191	192	168	190	171	181
East San Gabriel Valley	197	189	175	192	168	172
West San Fernando Valley †	153	136	142	155	171	171
Pomona-Walnut Valley	142	151	151	150	155	160
Central L.A. (including Beverly Hills) †	91	112	99	127	129	125
Southeast (including Whittier)	105	87	71	75	76	116
West Coastal - North (includes Culver City, Santa Monica) †	62	52	62	51	44	75
West Coastal - South †	30	11	12	7	10	19
South Coastal (includes Carson, Long Beach) †	30	13	7	13	4	5

* Table is rank - ordered with respect to air quality
† Includes parts of the City of Los Angeles

Table 7 used 0.10 ppm ozone (for one hour or longer) rather than 0.07 ppm used in Table 4. This downward change in the criteria standard increases the number of smog days even though the absolute levels of ozone are lower. The change in criteria makes it difficult to appreciate the general downward trend of absolute values over the past eleven years.

Also, it should be kept in mind that the California ambient air quality standard of 0.10 ppm (averaged over one hour) is a "trigger" value which if reached on any day causes that day to be counted as a "smog day". Such a trigger value is, of course, not an absolute value as are the maximum concentrations reached in any one year, (Table 5) and therefore Table 7 may not appear as clear in showing air quality trends.

THE SOUTH COAST AIR BASIN (SCAB)

The air quality trend which has just been discussed is that of the Los Angeles Air Basin. This is one part of the regional South Coast Air Basin consisting of part of Los Angeles County, all of Orange, and parts of San Bernardino and Riverside Counties. The history of air pollution control in the entire SCAB basin the time period 1965 to 1975 is the history of the battle between the rate of reduction in allowable emissions from polluting sources and the growth rate in the number of emission sources, especially moving sources (vehicles). It has been eleven years since the motor vehicle air pollution control program started in California, and five years since the major thrust in air quality implementation planning began in response to the requirements of the Federal Clean Air Act Amendments of 1970. However, since the geographical distribution of source growth, in particular, traffic growth, has been very nonuniform over the South Coast Air Basin (SCAB), the geographical distribution of emission trends is also very nonuniform. Among the counties in the SCAB, Los Angeles County has grown the slowest, while Orange County has grown at the fastest rate. This can explain what appears to be contradictory air quality trends at different locations in the SCAB.

In the decade, 1975-1985, growth rates may be slower, especially in the counties outside of Los Angeles County. Also, average emission rates will be reduced as new cars meeting stricter air pollution standards come into use. New tighter, light-duty vehicle standards (passenger cars and light-duty trucks) will accentuate the trend toward the growing importance of other sources.

Emissions of carbon monoxide and reactive hydrocarbons from light duty vehicles have been controlled to a greater degree than other sources such as heavy duty vehicles, motorcycles, aircraft and various stationary sources, which by 1985, appear likely to dominate the air pollution picture. To achieve large improvements (i.e., national and state ambient standards) in air quality in the future, stricter controls for many of these source categories will have to be implemented.

The projections of reductions in emissions of reactive (smog producing) hydrocarbons (HC), nitrogen oxides (NO_x) and carbon monoxide (CO) which were made in the early 1970's have turned out to be overly optimistic reductions for the SCAB as a whole. This is due (in part) to evaporative emissions from automobiles being much higher than called for by federal and state standards. (Evaporative emissions are not from combustion, but from crankcase blowby, grease, etc.). For another part, the new reactivity (weighting) scale for reactive (smog producing) hydrocarbons leads to a more pessimistic picture because it gives greater weight to source categories that have been reduced very little during the past eleven years. For the oxides of nitrogen (NO_x), the shortage of natural gas for some industrial operations and power plants, and the switch to fuel oil, have produced higher emissions than originally projected for stationary sources.

The South Coast Air Basin-wide trend in NO_x estimated (calculated) emissions over the period 1965-75 (a 36% increase) agrees well with the Basin-wide trend in ambient NO_x measured concentrations (35% increase). The geographical distribution of NO_x emissions and NO_x

concentrations on a county-by-county basis also agree. However, the deterioration in NO_x (nitrogen dioxide) air quality (about 20% over the 1965-75 period) is less than the increase in NO_x emissions. It is probable that this unexpected condition is because controls on smog producing hydrocarbon emissions served to aid NO_2 (nitrogen dioxide) air quality. This NO_x - NO_2 anomaly is interrelated to the formation of photochemical smog (O_3, NO_2, and peroxyacetyl nitrate) and air quality as follows:

The South Coast Air Basin-wide reductions in smog producing hydrocarbon emissions (18% below 1965-75) agree well with Basin-wide improvement in oxidant (O_3) air quality (19% reduction below 1965-75 pollutant concentrations). The geographical trends in oxidant (O_3) agree with the geographical trends in smog producing hydrocarbon emissions, showing improvements in oxidant (O_3) air quality in the western areas of the SCAB (e.g., Los Angeles) and the lack of improvement in the downwind eastern parts of the SCAB (e.g. Riverside).

It appears that present hydrocarbon control methods have been much more effective in indirectly controlling the higher oxidant ambient concentrations in SCAB. NO_2 in the presence of sunlight and reactive hydrocarbons produces photochemical smog.

Estimated ARB carbon monoxide (CO) calculated emission trends and CO air quality measurement trends in SCAB do not agree. CO air quality seems to have improved much more rapidly than actual reductions in CO emissions. The resolution of this anomaly requires further investigation. Table 8, which follows, is an attempt to capsulize in summary form data generally from the years 1965-1975, although specific air pollution data goes back as far as 1953-1954. It is intended to interpret the air quality trends for both the Southern California Air Basin and the Los Angeles Air Basin in comparative terms rather than by numbers, in order to more clearly and simply show the highly contradictory nature of trends in different locations.

TABLE 8

AIR QUALITY TREND SUMMARY

POLLUTANTS	SCAB	L.A. AIR BASIN
O_3	no improvement	improvement
NO_x	worse	improvement (in maximum concentration only)
NO_2	worse	improvement
CO	improvement	improvement
SO_2	no clear trend	improvement
Particulates	no clear trend	improvement
Non-methane Hydrocarbons (includes smog producing hydro-carbons)	improvement	no clear trend
Methane Hydrocarbons	no clear trend	no clear trend

NOISE:

The regulatory control of noise has existed, to a degree, since the Roman Empire, where restrictions on the use of chariots were invoked. Later, medieval towns adopted ordinances regulating both mobile and stationary noise sources. Ironwheeled carts could not operate freely on paved market streets due to associated noise. Nighttime restrictions were also imposed on noise related commercial and industrial activities including blacksmith operations.(6)

Recognition of noise as an environmental liability continually grows. While noise is seldom a primary health hazard, of all environmental pollutants it is among the most annoying, the least regulated, but the easiest to abate. In most instances noise pollution is of a very local nature, within a limited range of several hundred feet, and usually of a comparatively short time span.

Noise has been described as unwanted sound. We can measure sound levels quite accurately. However, noise (unwanted sound) has both a physical effect on our eardrums and a phychological effect on our brains. So the study of noise uses many units to describe human reaction to sound. Besides decibels, there are phons, sones, noys, perceived noise levels and a host of others. Each, in its own way, tries to take some account of the psychological basis of noise perception. We know there are individual differences in sensitivity to noise. Studies have shown that people disclosed by personality tests to be unusually anxious consider noise to be a strong irritant, and that noise perception in general is different between introverts and extroverts.(7)

The United States Constitution through the 5th, 9th and 14th Amendments, guarantees habitation quietude. However a sizeable portion of the population is subjected to what may be described as adverse levels of noise. A Federally funded study in 1966 found that, of those interviewed, 65% of the people living in areas other than around airports were bothered by some form of neighborhood noise, primarily surface street traffic.

The Clean Air Act of 1970 called for the establishment of an office of Noise Abatement and Control in the United States Environmental Protection Agency. A special report prepared by that office served as a basis of the Federal Noise Control Act of 1972. This requires the development and publication of information on the limits of noise required for protecting public health and welfare and to identify products that are major sources of noise and to set noise level standards for them.

In January 1973, the City Council approved the City's first comprehensive noise ordinance (Ordinance #144,331). This Ordinance prohibited creation or emission of excessive noise beyond certain levels established for residential, commercial, light manufacturing and heavy manufacturing zones. Lower levels were set for nighttime hours between 10 p.m. and 7 a.m. in residential and commercial zones. Noise levels for both day and night are to be further reduced in 1978 for residential zones.

Time limits were also set for playing radios, television sets, etc. in a manner which disturbs any "reasonable person of normal sensitiveness residing in the area". Time limits were also established for the operation of construction equipment, and on rubbish collecting, vehicle repairs in residential zones, and operating sound amplification equipment. Regulations on the operation of air conditioning and refrigeration equipment were also included.

In July, 1974, the Ordinance was amended to set standard noise limits for the operation of powered equipment and powered hand tools. These levels were to be progressively lowered until July of 1977 at which point acceptable limits would have been achieved. Test procedures were also included for determining violations.

On April 1, 1974 an Ordinance requiring party wall and floor and ceiling sound transmission control between dwelling units within residential buildings became effective in the City of Los Angeles. Between April 1, 1974 and September 30, 1976 there were 1,292 building permits issued for residential buildings requiring compliance. These buildings contain 16,611 dwelling units.

From a legislative standpoint the years from 1970 to 1976 were mile posts in the field of noise pollution control.

The California Streets and Highways Code had been amended in 1970 to require that noise impact upon communities be considered in locating state highways and freeways. Although the state motor vehicle code placed restrictions on the operation of a motor vehicle with an altered exhaust muffler, this enforcement was limited. Meanwhile, the California Department of Transportation has located, designed, constructed, and operated freeways to minimize the traffic noise reaching adjacent areas. As of today it has constructed within the City of Los Angeles, approximately 7.7 miles of noise barriers at an estimated cost of $3 million. These barriers are located on Route 2 (Glendale Freeway), Route 5 (Golden State Freeway), Route 101 (Hollywood Freeway), Route 118 (Simi Valley/San Fernando Valley Freeway), and Route 405 (San Diego Freeway).

Due to the uncertainty of budgeting and programming, it is difficult to identify proposed noise barriers to be constructed in the City during the next few years, however, the 6-year Planning Program includes approximately $85 million for sound attenuation projects (noise barriers, sound insulation of structures, etc.) along existing freeways for all of District 7. Some fifty Los Angeles Schools, both public and private, will be protected from intrusive freeway noise through this program. In addition, new freeway construction projects, such as those planned for the Route 118 Freeway, will include noise attenuation facilities as part of the initial construction.

In the area of aviation noise, Federal authority over aircraft flights has preempted direct local action. In 1971 the EPA's Office of Noise Abatement and Control was directed to prescribe and amend standards for measuring aircraft noise, and to apply such standards to Certificates of Air Worthiness. California State law had been amended to require soundproofing standards for buildings adjacent to airports, and in December 1970 the

Los Angeles Department of Airports adopted Sound Abatement Procedures and Regulations in compliance with California Airport Noise Regulations.

The EPA was directed to make a comprehensive study of noise around airports by mid 1973, and to submit proposed regulations to control aircraft noise and sonic booms to the Federal Aviation Administration which could reject the proposals if it believed they were unsafe, technologically or economically unfeasible, or not applicable to certain aircraft. By 1971 a lid had been put on the escalation of aircraft noise by including noise criteria among those necessary for certification. In 1973 the regulation was extended to apply to all newly manufactured turbo jet aircraft, regardless of when the series was originally certified. In December 1974 noise standards were established for small aircraft with reciprocating engines.

The Los Angeles Department of Airports estimates that by the end of March 1976, 20.3% of all aircraft operating at LAX had received FAR part 36 (quiet aircraft regulation) certification. To give an example of progress toward the elimination of the noise problem in the Los Angeles Inernational Airport area, in 1972 there were 165,400 residents and 12,700 offsite acres within the LAX, 65 CNEL contour (an area determined as being noise impacted). By 1975 that contour area had been reduced so as to effect only 84,400 people and 6,500 acres. This is a reduction of 48.97% in impacted residents and is due to a number of factors including an increase in load factor, a decrease in the number of aircraft operations, increasing the first segment glide slope for landing and increasing overocean takeoffs and landing operations, and the acquisition of land in the noise impacted areas at a cost of $160,000,000.

WASTE:

The composition of the residential solid waste stream has experienced major changes over the last seventy years according to Los Angeles City records. Food waste or wet garbage has nearly disappeared as the home garbage grinder has diverted it into the sewer system. Then the tin can or metal food containers' replacement by frozen foods has seen the metal content drop dramatically. The net result is that the Los Angeles urban waste stream is now composed of about 40% paper products, 35% yard maintenance material (tree trimmings, grass and dirt), 6% metals and 6% food waste. This changing composition is illustrative of the need for flexibility in solid waste management schemes.

The industrial commercial solid waste stream is estimated at twice that of residential in total volume, is more homogeneous, and therefore, more subject to resource recovery-recycling efforts. This segment of solid waste management is handled by private industry and, therefore, is much harder to quantify since the companies engaged in this activity consider such information as proprietary.

A nation-wide survey in 1973 reported that the City of New York had the nation's highest disposal cost of any major city at $55.00 per ton. Los Angeles had the lowest average disposal costs at $15.00 per ton. Los Angeles' low cost is attributed to the sanitary landfill system. Unless social, environmental or political considerations intervene, the economic advantage and the availability of readily accessible, geological suitable canyons will cause the sanitary landfill to continue as the primary solid waste disposal method of Los Angeles for the near term, variously estimated at 30 to 50 years.

Cities with higher disposal cost per ton are currently experimenting with alternative disposal methods with a major portion of the financial burden being carried by EPA grants. Pyrolysis and separation for direct recycling are two processes receiving considerable attention at present.

In separation systems for the direct recycling of the more valuable solid waste fractions (such as metals), the market demand and solid waste supply uncertainties are major problems. Our industrial system, by and large, has been based on the utilization of vast quantities of "virgin" raw materials of consistently known uniform quality or grade and on a comparatively constant, predictable supply flow. The unreliability of supply through the recycling process and the contaminants affecting the quality of the re-manufactured product (as opposed to virgin, raw material) combine to make solid waste unattractive as source material at the present time. The events or factors most likely to alter this situation would be a breakthrough in separation technology, economic necessity, and resource conservation.

A number of recycling centers relying on source separation of residential solid waste have been operated by the City and others with limited success. The City's zoning code restricts receiving centers for secondary materials (separated portions of the solid waste stream) to industrial zones. Such locations tend to be inconvenient to the general public, and so reduces their accessibility. However, the noise and litter associated with such an activity, and the incompatibility with adjacent land uses in the residential and retail commercial zones, support the continuation of the zoning restriction.

A six month pilot program for separate collection of newspaper in three areas of the City was operated by the City's Bureau of Sanitation from August 4, 1975 to January 30, 1976. Results were disappointing. Public participation peaked at 10% and had declined to 2% in the final week. Because of these low participation rates, separate newspaper collection on a City wide basis was considered to be unfeasible at the present time. However, the study is being reevaluated to determine if the public could be induced to support such a project.

The 1970 amendments to the Federal Solid Waste Disposal Act required development of State Solid Waste Management Plans. These Plans were to include programs for recycling or recovering

materials wherever possible. In 1972 California enacted the Nejedly-Z'berg-Dills Solid Waste Management and Resource Recovery Act which required development of countywide solid waste management plans by January 1, 1976.

The 1972 State Act created a State Solid Waste Board whose responsibilities included establishing criteria for counties to follow in developing local plans. The Act set state-wide resource recovery goals of 30% by 1978 and 50% by 1985. Counties unable to meet these goals are required to demonstrate through factual analysis why recovery programs that would meet those goals are not feasible. Regular review of the county plans for incorporation of state of the art developments and assessment of alternative solid waste management systems is required. Relative net cost of resource recovery systems, as opposed to the cost of established systems, will determine when resource recovery becomes economically feasible.

Management of toxic wastes has only recently been given the attention it deserves. The solid waste Acts, state and federal, referred to provide some impetus, as does the federal Toxic Substance Acts. The greatest stimulus to solving this problem, however, has been the exhaustion of readily accessible disposal sites that can accept all types of waste material.

WATER:

The importance of water to the City of Los Angeles and the recognition of this importance to the success of the City dates back to the founding of the Pueblo under the Spanish kings and the concept of the Pueblo right to the water of the Los Angeles River. In 1902 the water supply of the Pueblo was returned to the control of the City government after periods of private ownership. From 1902 until approximately 1935 the water utility, primarily under the direction of William Mulholland, reserved, developed and provided the delivery systems for an ample supply of fresh water on which the development and the growth of the City is based. Mulholland's primary objective was insuring the availability of sufficient quantities of water in event of population expansion and drought.

As the scientific community established a link between water and disease, and the public grew concerned about health problems, disinfection through the use of chlorine was integrated into the water supply delivery system. The City of Los Angeles water could then be described as one of ample quantity and of good quality; free of harmful pathogenic organisms. Today this quality is protected by standards established by the State and County Departments of Health.

The eastern slopes of the Sierra Nevada provide 80% of the City water supply through City owned aqueducts completed in 1913 and 1970. An additional 17% comes from underground wells tapping the Los Angeles River watershed. This, combined with the City's entitlement to supplies furnished by the Metropolitan Water District of Southern California (MWD) provides for current needs and should supply future increases in demand. The MWD distributes a blend of water from the Colorado River and from the State Water Project's Northern California sources.

In response to the new water quality standards (Safe Drinking Water Act of 1974) which are more stringent than the 1962 standards, the Department of Water and Power (DWP) has initiated a Water Quality Improvement Program to reevaluate present water treatment processes, develop new water quality objectives, and to prepare plans to meet federal requirements. In particular DWP is attempting to improve water turbidity (clarity). The DWP statement of objectives was completed in January 1977 and the facilities to meet the objectives are scheduled to be constructed and placed in service by 1982.

Groundwater

Groundwater basins provide a significant portion of the City's total water supply and serve as large underground reservoirs in storing local rainfall, and, at times, imported water. As of August 1, 1975, Los Angeles' available groundwater supply from the San Fernando Valley was increased by approximately 40% due to the State Supreme Court's decision on a 20-year water litigation. There is now the possibility of using the San Fernando Basin as a storage facility of the State Water Project.

In the past some underground waters have been degraded due to inadequate procedures on the part of industrial operators. Seawater filtering into the underground fresh water table also has been a problem. A barrier to further seawater intrusion is now being extended along all the endangered areas of the Los Angeles County coast by means of fresh water injection wells operated by the County Flood Control District.

WATER CONSERVATION

The current record drought which began virtually unnoticed in the final months of 1975, exploded on the consciousness of the State in the first 60 days of 1977. Last year, was the third driest in California's history. This year, with even less snow and rain, seems destined to be the driest. With rationing faced in many communities, it has been brought to light that 33 cities in California are unmetered.

Because of the tremendous costs of the facilities to bring water to Los Angeles, the public here has long been accustomed to the metering of water. Metering directly apportions the cost of water service to the customer and has always given a financial incentive to conserve.

In view of the gravity of the situation, a more active water conservation program has been initiated by the City. The environmental costs of using water with particular emphasis on energy requirements are stressed. Information on practices and devices associated with water savings has been widely distributed. Residential users are encouraged and shown how to reduce water use both inside and outside the home. Landscape irrigation uses great quantities of water to provide greenery in this semi-arid climate. A simple procedure is being developed that will permit the homeowner to reduce the amount of water used for lawn irrigation.

WASTE WATER RECLAMATION

Water users currently return about one-half of their fresh water supply to the sewer after it is used once. The wastewater is collected by sewers, delivered to a treatment plant to remove most of the waste material, and then is released to the ocean. The magnitude of this discharge from the City of Los Angeles is 360 million gallons per day. If sufficient treatment is given to protect public health, reclaimed wastewater could be reused for certain industrial, recreation and irrigation purposes.California established the State Water Resources Control Board and nine Regional Water Quality Control Boards in 1967. Regional Boards were given the authority to impose waste discharge requirements on industries. In 1970, the Porter-Cologne Water Quality Control Act required the development of comprehensive water basin plans.

The greatest impact on water quality between 1970 and 1976 has resulted from changes brought about by adoption of the Federal Water Pollution Control Act amendments of 1972. Although there were certain similarities changes were necessary to bring California law into conformity with new Federal requirements: - all discharges of pollutants from point sources to navigable waters were required to have waste discharge permits; Federal guidelines were adopted requiring "best practicable" water pollution control equipment for industries by 1977, and the "best available" by 1983; civil fines were increased and criminal penalties added; and membership requirements, including conflict of interest provisions, were tightened on State and Regional Boards. Pursuant to the requirements of the Federal Water Quality Amendments of 1972 (PL 92-500), the City has intensified its industrial wastes source control and quality surcharge activities. This is to protect the receiving waters where treated effluents are diffused; and to protect the wastewater quality to an extent such that its reclamation as a resource would remain possible.

The City of Los Angeles has constructed a wastewater reclamation plant near the City of Glendale and has plans for one to be built in the near future in the Sepulveda Basin.

Conceived both as a water conservation system and as a less expensive alternative to large interceptor sewers, the plant can reclaim 20 million gallons per day and has the potential to reclaim 50 million gallons per day. The upgrading of the Terminal Island Treatment Plant in the Port of Los Angeles has helped improve water quality in the harbor. Contracts have been completed for the conversion of the Hyperion Treatment Plant to secondary treatment for discharge into Santa Monica Bay. Design and construction of industrial wastewater treatment systems at the Haynes, Scattergood, Harbor, and Valley generating stations is proceeding. These will be used for treating wastewater resulting from in-plant processes. The Department of Water and Power over the next three years will engineer and construct new piping for the collection and transport of wastewaters, settling and holding basins for the storage and treatment of wastewater, chemical treatment plants, and sludge processing equipment.

SEA WATER

Harbor Waters:

The efforts of the Harbor Department and the cooperation of its tenants as a result of the Porter-Cologne Water Quality Control Act and the Federal Water Pollution Control Act Amendments of 1972, caused water quality within the Harbor to improve dramatically in the early 1970's. The oxygen levels throughout the harbor are routinely above the 5 ppm (parts per million) necessary to maintain a healthy marine ecosystem. The oily slick formerly accepted as a normal part of a working harbor's environment is now a rare occurence. Formerly the dumping of sewage and industrial wastes had caused fish and plant life either to diminish or disappear from the harbor. Today, about 132 species of fish and 450 species of invertebrate marine animals have established habitats in the harbor waters.

In 1971 and 1972 the Department of Water and Power conducted thermal (heat) effect studies for the Harbor, Haynes and Scattergood

Generating Stations which discharge into sea waters, to determine the dispersal areas, assess seasonal variations and examine the areas for the effects on the indigenous fish populations. The studies showed that areas of special biological significance are being protected, and that the discharge from the Harbor Generating Station seemed to have a beneficial effect on the local harbor bottom community in that the biomass and diversity of life at the discharge area exceeded that elsewhere in the harbor.

At the Scattergood Generating Station, the installation of a "velocity cap" has resulted in a reduction of 58 percent in fish entrainment in the intake waters as compared to when no cap was in place. Daily separation and weighing of all aquatic biota removed from the intake waters and the separation and weighing of all marine organisms removed due to heat treatment operations to determine the impact upon the fish population of Santa Monica Bay so far indicates nothing significant.

Coastal Waters

The City of Los Angeles joined with other municipal discharges to support the formation of the Southern California Coastal Water Research Project in 1969 to study the impact of wastewater discharges along its coast. Its main objective has been the development of an understanding of the ecology of coastal waters and the problems of pollution, especially those associated with municipal discharges.

It has been difficult to distinguish biological changes caused by pollution from those brought about by natural phenomenon. Comparison of present day samples with those from early years is difficult because of changes in equipment and lack of necessary data on oceanographic conditions at the time of sampling. However, studies which the project has made of waste discharges, storm and dry weather runoff, effects of toxic substances on marine organisms etc. provide, for the first time, the opportunity to develop causal relationships, to monitor on a comprehensive scale with changes in the marine environment, and to measure improvement or deterioration.

The Coastal Water Research Project in 1976 began probing the complex chemistry of benzenes, measured virus in the sea, used television to count undersea animals, and conducted metal toxicity tests at levels close to those found in nature.(8)

The Project pointed out that secondary treatment of waste waters causes many of the metals to become more biologically available and thus more likely to cause problems. Amounts of heavy metals actual available to sea animals around most outfalls is already much lower than the level that produces undesirable effects.

Techniques for sampling and analyzing chromium have improved remarkably. The concentration of chromium in the water near the Palos Verdes submarine outfalls is not significantly greater than elsewhere in the bay. However, the amount of chromium attached to particulates in that region is 10 to 100 times that in offshore water.

Largely because of effective source control, municipal wastes now contain only 5% of the amount of DDT discharged in 1970. Aerial fallout has been the dominant input of DDT to the sea since 1974. Most PCD (polychlorinated biphenyls) enters the sea via outfalls but the 1975 level is only about 1/10 of the 1972 level.

In 1976 the project began to study the benezene group partly because a National Academy of Sciences study suggested that hexachlorobenzene (HCB) might be a serious pollutant. It was found that HCB is not present in waste water in significant quantities but that small p-DCB (paradichlorobenzene) and two other benzenes are present at levels comparable to the PCB levels believed to be dangerous. Benzene chemicals are used by industry, in pest killing home products, and in lavatory deodorant cakes.

Each year, the reported quantity of flow, concentrations of possible pollutants, and mass emission rates of the large municipal waste discharges into the California Bight for the last calendar year are summarized. Comparing 1975 with 1974 the volume of flow is down 1% and

the amount of suspended solids is up 10% (much of the latter is a result of special, one time situations). The mass emission rates of all metals except silver was down. Cadmium was reduced 6%; mercury 25%. Silver apparently increased 17%, but this may be a reflection of better measurements rather than actual increase. DDT continued to decline (down 6%) as did PCB (down 35%) but the latter may also be partly due to better sampling and analytical procedures.(8)

The Federal Water Pollution Control Act requires that ocean discharge of sewage sludge be stopped in 1977. This has been extended so that the City is now presently mandated by the Environmental Protection Agency to completely stop discharging sludge into the ocean by 1980. The immediate alternative of disposing all sludge on land by landfilling techniques poses environmental problems as well. It is the City's position that additional study is needed to more accurately assess the potential environmental impacts of the sludge processing or disposal alternatives, including that of deep ocean sludge disposal.

Chapter II

THE ENVIRONMENTAL RECOMMENDATIONS OF 1970 AND THEIR STATUS TODAY

The beginning of the decade of the 1970's marked an awakening of a new environmental awareness on the part of government throughout the country. The cumulative affects of the many environmental mistakes of the past were beginning to reach crisis proportions. Nineteen hundred and seventy can well be considered to be the year that the government's participation in the environmental movement officially started.

In that year, on January 1, 1970, the National Environmental Policy Act of 1969 was signed at the federal level. Within the year the State of California followed with the passage of the California Environmental Quality Act of 1970.

The City of Los Angeles responded with the Mayor's Conference on Environmental Management of March 7, 1970. The report emanating from the conference, entitled "Action on the Los Angeles Environment" has been selected as a bench-mark upon which the present report is based.

This chapter outlines the recommendations contained in the 1970 report and indicates progress toward their accomplishment.

ACTIONS ON THE LOS ANGELES ENVIRONMENT(9)

ENVIRONMENTAL PROGRAM

RECOMMENDATIONS: 1970	STATUS: 1976-77
Establish an Office of Environmental Quality for the City of Los Angeles headed by an Environmental Director.	Department of Environmental Quality (D.E.Q.) created June 21, 1972 by Ordinance 143,565. Provides for a General Manager. See Appendix.
The Mayor and City Council appoint a five-member Board of Environmental Quality Commissioners to serve in an official advisory and appeal capacity.	Board of Environmental Quality Commissioners created June 21, 1972.
Recommendation of a minimum staffing level of 10 full-time positions, including a specialist in air pollution and three professional employees able to operate in a variety of environmental areas.	DEQ currently has the minimum staffing.
There should be a new voluntary Citizen's Council on Environmental Management to replace the present Mayor's Council on Environmental Management and provide continuing citizen input on environmental matters.	Current Citizens' Advisory Committee to DEQ Commission inactive Commission conducts public hearings in lieu of committees.

RECOMMENDATIONS: 1970	STATUS: 1976-77
A City Interdepartmental Environmental Control Committee be formed, chaired by the Environmental Director.	The DEQ General Manager is a member of the interdepartmental General Plan Advisory Board.
There is need for a detailed program of environmental action to be undertaken by the City.	The State of the Environment Report is part of the DEQ's development of such a program.
The City must develop a new approach toward growth.	City growth policy is contained in the City General Plan adopted in 1974.
The City should undertake an in-depth study of the carrying capacity of the basin's natural resources--air, land and water --utilizing the best available environmentalists, economists, and social scientists--in order to lay the basis for sound policy decisions on growth.	City government involved in this under the Federal Water Pollution Control Act, Section 208 (Southern California Association of Governments) and the South Coast Air Quality Management District.
The state in consultation with local governments, should be encouraged to set maximum population figures for all of Southern California and plan public works accordingly.	The State imposed E-series population projections on all local government projects for which state or federal funding is requested. Current 208 Waste Treatment Management Planning considers this.

The Planning Department's efforts to roll back zoning to the reasonable capacity of the land should be supported.	Density reduction actions are being initiated throughout the City in accordance with the City's General Plan Elements.
There should be a reassessment of the City's industrial and economic development efforts--efforts should concentrate on assistance to firms already located in the area and on selective growth in those economic activities found best for Los Angeles' future environment.	The City Economic Development office was established to accomplish these goals.
The City should require developers to submit full reports on the potential environmental impact of new projects and proposed solutions (including funding) before subdivision, zoning or building permits are approved.	Environmental Impact Reports are required by state and federal law where a determination of significant impact is made. The City between 1972 and 1977 processed 495 Environmental Impact Reports on public or private projects within the City and has considered 4539 Negative Declarations as to their environmental consequences under the California Environmental Quality Act.
The City should require impact studies by its own departments and should review such studies done by others on projects which affect the City.	Review and retention of the EIR documents are responsibilities of the Department of Environmental Quality.

RECOMMENDATIONS: 1970	STATUS: 1976-77
There should be an independent, objective environmental capability within City government which can review, investigate and report to the Mayor and City Council on the activities of other City agencies relative to the environment.	DEQ established in 1972 to carry out this function.
The City should provide leadership in securing needed legislation at the state and federal level.	DEQ established to carry out this goal.
Annual presentation of a message on the state of the City's environment--indicating progress and failure and pinpointing the areas where improvement must be made.	This report is the first "State of the City's Environment" report.
Public education programs of all sorts must be developed.	DEQ established to accomplish this goal.
There is a need for a central information bureau concerning environmental activities.	DEQ is the City repository for environmental information and disseminates information to the government and general public.
Support research and development activities in order to adequately understand environmental problems and to develop solutions.	The City through DEQ and various other City agencies is supporting such activities.

RECOMMENDATIONS: 1970	STATUS: 1976-77
Where appropriate, the City should conduct its own investigations, studies, surveys, research and analysis relating to ecological systems and environmental quality.	DEQ and other agencies are doing this to an increasing extent. (See Chapter III).
Develop the budget and sources of funds for city environmental programs.	DEQ and other City agencies are doing this to an increasing extent. (See Chapter III).

AIR QUALITY

RECOMMENDATIONS: 1970	STATUS: 1976-77
The responsibility for control and elimination of air pollution should be vested in one agency. Consideration should be given to placing this agency under the proposed state Environmental Quality Board and its regional conterparts.	As of January 1, 1977, air pollution is under a regional entity: the South Coast Air Quality Management District in which the City has membership. In addition, there is the Air Resources Board of the State.
The City must assume an aggressive role in encouraging tighter standards for both stationary and moving sources and in demanding alternative technologies that inflict the least harm on the environment.	Stringent state regulations preempt the necessity of City standards.

RECOMMENDATIONS: 1970	STATUS: 1976-77
All City operations should comply with air pollution standards.	City operations are monitored by state and regional agencies.
The Office of Environmental Quality should keep abreast of research efforts in air pollution, serving as a clearinghouse for making information available to City officials and agencies. The office should also make the City's research needs known and encourage continuing research related to air quality.	The Department of Environmental Quality is the clearinghouse for environmental information in the City, participates in a variety of air pollution coordinating bodies and through its air pollution specialist conducts investigations and keeps the City abreast of air pollution research.
The City Bureau of Transportation should complete its research into the use of non-gasoline fuel for City vehicles and develop plans for conversion to such fuel if at all feasible.	The Bureau of Transportation is testing five pick up trucks all equipped with natural gas fuel systems. Although significant in pollution reduction, ongoing supply is not guaranteed, and the logistics and costs are prohibitive. So far no viable alternatives are apparent.
New buses should be equipped with upright roof exhausts like those General Motors has recently begun producing.	One hundred of 700 buses purchased by the Southern California Rapid Transit District (1971-76) were vertical. Two hundred vertical stacks are currently ordered.
Privately owned fleet vehicles (including trucks) should be given incentives to adopt	The Bureau of Transportation is experimenting with the use of natural gas in test vehicles.

RECOMMENDATIONS: 1970	STATUS: 1976-77
all available smog-reducing measures. For fleets subject to City franchise, the City might require that operators of seven or more vehicles take such steps as a condition for renewal of their franchise.	
There should be periodic inspection of City-owned vehicles for smog emission, whether converted to non-gasoline fuel or not, to assure they are being tuned properly to minimize emissions.	The Bureau of Transportation inspects all City-vehicles under its jurisdiction at least twice a year.
The City should examine the feasibility and potential effectiveness of an inspection program for private vehicles.	Not initiated due to lack of funds.
The police should be required to enforce state motor vehicle emission standards	Local law enforcement does not have current authority for this function.
Computer coordinated traffic signal control should be extended throughout the City. This would reduce the number of traffic stops, thereby reducing excessive emissions resulting from acceleration and deceleration.	Through traditional methods (direct wire and telephone interconnect), 3/4's of the City has been synchonized. A computerization feasibility study was completed by Sperry Rand in 1975, indicating the magnitude of benefits. This item is currently recommended for

RECOMMENDATIONS: 1970	STATUS: 1976-77
	inclusion in Capital Improvement Program for 1977-78 initially in the downtown area.
There should be efforts to stimulate the use of modes of transportation other than the private auto, particularly for home-to-work trips from the central business district.	Efforts have been attempted to increase higher capacity transportation vehicle usage; e.g. increased bus routing and frequency, El Monte busway, preferential bus-carpool lanes,Grid Bus systems, subscription bus service,computerized car pooling program, etc.
Within the central city, proposals to reduce auto traffic should be implemented--for example, the concepts of the Planning Department and Redevelopment Agency for a people-mover and peripheral parking structure system.	The Central City People-Mover project was approved for funding by the federal government in 1976.
Hours of operation of the downtown minibus project should be expanded to assist commuters and reduce reliance on automobiles.	Minibus operations have been expanded in the downtown area as to routing and frequency and hours of operation. Minibuses are also now used in some outlying areas, such as Westwood.
Special provisions should be made to encourage the use of bicycles for short trips to neighborhood stores, schools and parks and in other concentrated centers such as university communities.	Though not specifically for the purpose of transport to neighborhood schools, stores, and parks, bikeways have been expanded thoughout the City and interconnected with regional bikeways.

RECOMMENDATIONS: 1970	STATUS: 1976-77
The Department of Water and Power DWP and other power companies should be encouraged to continue their investigations of geothermal energy (natural underground heat) as a source of power.	D.W.P. researched this recommendation and concluded that the output of geothermal plants is marginal, and not sufficient for large-scale use by the City. There are no local geothermal resources for extensive use.
The City should adopt zoning and building code provisions which require the approval of the APCD before any permit is issued for land subdivision, development, building or equipment installation which involves potential air pollution.	Not initiated. However, air pollution factors must be taken into consideration as a part of the Environmental Impact Reporting process.
City contracts should not be granted to any firm which willfully and continually violates county, state or federal air pollution standards.	No action. The City by law must accept the bid of the lowest responsible bidder.
Smog warnings should be issued to all citizens who participate in highly physical activities--possibly through an extension of the existing school alert program.	Smog warnings are issued by radio. The Department of Recreation and Parks is preparing plans for warnings to those at City recreational centers which include recommendations not to participate in strenuous physical exercise. D.E.Q. has been working with the City School District to encourage observance of smog alert requirements.

RECOMMENDATIONS: 1970	STATUS: 1976-77
The City should assist in exploring and promoting low cost methods of continuous monitoring of stationary sources, such instrumentation to be installed and maintained at the source owner's expense.	Monitoring of stationary sources at the owners own expense is currently required by the State Air Resources Board and by individual districts (South Coast Air Quality Management District).

WATER AND WASTES

RECOMMENDATIONS: 1970	STATUS: 1976-77
The Department of Water and Power should reconstruct or replace the Van Norman Reservoir complex in such a manner as to be compatible with the installation of modern water treatment facilities.	Reconstruction of Van Norman Reservoir is currently in progress due to earthquake damage.The newer and smaller reservoir allows space for inclusion of water treatment facilities at a later date.
A long-range plan for the reuse of reclaimed wastewater should be developed in cooperation with water-using recreation, and planning agencies.	Work is underway to accomplish this goal. For example, the Los Angeles - Glendale treatment plant is designed to produce reclaimed water for irrigation at Griffith Park.
The Departments of Public Works and Water and Power should continue their policies of developing and utilizing available technology of water re-use to the end that it no longer will be necessary to dispose	The City currently has a plant designed for reuse. A problem with reuse is that in most instances, the reclaimed water must be pumped back upstream for use by the same customers. The only alternative is for the City to persuade cities below inland treatment

RECOMMENDATIONS: 1970	STATUS: 1976-77
of valuable water resources in the sea after only one use.	(reclamation) facilities to use its reclaimed water.
It should be City policy that the quality of subsurface waters be maintained at a high level to protect and restore their use for drinking water purposes.	Groundwater quality in the San Fernando and Tujunga basins has been stabilized since 1968 when all users were limited to withdrawals equalling the recharge. Prior to that, deterioration was experienced due to overdrafts. Improvement may be expected should the basins be used as storage facilities of the State Water Project.
City standards for the handling of potential contaminants should be strenghtened and strictly enforced to protect the underground waters.	Standards, regulation and enforcement are multi-agency functions largely superseding the City.
There should be modifications in the municipal code and other statutes to better control and to reduce discharges of industrial wastes.	Federal laws requiring treatment have reduced industrial wastes.
Sources of nitrate contamination should be eliminated to protect the lives of infants who are quite sensitive to nitrate poisoning.	This is not a problem within the City.

RECOMMENDATIONS: 1970	STATUS: 1976-77
The City should establish a program whereby every discharger of liquid and solid wastes into the City's system pays for the full treatment of those wastes based on type and amount of pollutants.	This requirement has been applied to industrial wastes, but not to residential wastes.
The City should control new industrial development on the basis of type of waste to be discharged and the method of disposal.	The City does control new industrial development on the basis of its projected discharge volume and the capacity of the sanitary sewer system, and though compliance with City regulations on the composition of the waste stream. Further control is exerted through State and Federal agency requirements on discharges to storm drains tributary to State and Federal waters.
Monitor, investigate and eliminate all sources of pesticides and heavy metals entering City sewers and storm drains.	A vigorous enforcement program by the Bureau of Sanitation has been effective, and industrial sources of these toxic materials is for the most part under control. The principal source of toxic materials in the sanitary sewer is currently from residential dumping of unwanted household chemicals. The effort at storm drain sources (urban run-off) is just now getting underway through the 208 Wastewater Management planning effort.

RECOMMENDATIONS: 1970	STATUS: 1976-77
The City should advocate and enact legislation to restrict the sale and use of heavy metals as well as persistent insecticides. Such substances used should be replaced with environmentally acceptable substitutes.	D.E.Q. is studying herbicide-pesticide use, storage, etc., with a view to recommending appropriate legislation and procedures.
Investigate alternate means of disposing of sludge solids and develop controls on any adverse effects of sludge solids discharged into the marine environment.	The City Council has challenged the U. S. Environmental Protection Agency order to take sludge out of the ocean, although research on alternatives is continuing.
The Department of Water and Power and other agencies operating thermal power plants should continue efforts to minimize any adverse biological effects of heated water discharges.	The City is in conformance with the State Ocean Plan. The plan limits thermal discharge by stipulating that the difference between background temperature and surface temperature above a thermal discharge shall not exceed four degrees Fahrenheit.
The City should enact, and support enactment by other appropriate government jurisdictions, a special tax on disposable containers, thereby discouraging their use.	The City has supported legislation which would include all recyclable material but would not single out a specific industry for taxation. Support in concept was given AB 2353 (Z'berg) "The Litter Abatement and Resource Recovery Act of 1975".

RECOMMENDATIONS: 1970	STATUS: 1976-77
The City should study and adopt appropriate methods of recycling solid wastes in co-operation with other agencies, and consider the feasibility of permanently establishing recycling centers throughout the City.	Six collection centers for metals, glass and plastic recyclable materials have been operated by the City since February, 1972. A six-month pilot newspaper collection program in two localities within the City was the subject of a feasibility study in 1975. The results were negative.
The City should request the Purchasing Agent to make available supplies of recycled paper to determine the applicability of such paper to City government needs.	The City instituted a white paper recycling program in 1976. Purchase of recycled paper was discontinued due to the high cost of recycled paper.

NOISE

RECOMMENDATIONS: 1970	STATUS: 1976-77
Recommend that the City adopt a comprehensive noise ordinance covering all noise generation sources under its regulattory control. Included would be industrial and commercial operations, construction projects, machinery, fans, air conditioning equipment, television sets, radios, animals and motor vehicle operation. The provisions of the Model Noise Ordinance of the League of California Cities should be incorporated into the ordinance to the greatest possible extent.	A comprehensive noise regulation ordinance covering common noise generation sources was adopted January 24, 1973 (Ordinance 144,331). The ordinance is currently being studied for revision by DEQ.

RECOMMENDATIONS: 1970	STATUS: 1976-77
On city streets, the Police should implement a much stricter program of enforcement of the code than is currently the case. Special emphasis should be placed on the control of motorcycles operating in residential areas where the surrounding noise level is relatively low.	The Police Department is aware of the problem and takes enforcement action when instances of noise pollution become known to it. Priorities are determined by the concept of selective enforcement which directs primary effort toward violations which may cause injuries or property damage.
The city, acting through and with its Department of Airports, should work toward the improvement of the aircraft noise problem at Los Angeles International Airport by bringing as much influence as possible behind a program to develop a quieter jet engine.	The Department of Airports has encouraged and promoted development of a quieter jet aircraft engine in conjunction with federal regulations.
Continue efforts to limit airport ground noise, acquire noise-affected property and establish noise monitoring systems.	The Department of Airports has made efforts to limit airport ground noise. It has also acquired surrounding noise-affected property and established a noise monitoring system.
In cases where no standards for allowable noise emission currently exist, reasonable quantitative standards should be established.	City standards have since been established for noise emissions for noise emissions from powered tools and construction equipment. (Ordinance #148,594).

RECOMMENDATIONS: 1970	STATUS: 1976-77
Attention should be given to the existing standards for other noise producing sources. If reductions in allowable noise limits can be reasonably accomplished, such reductions should be implemented.	Revision of the noise regulation ordinance is currently under study by D.E.Q.
The city should amend the building code to specify use of acoustical treatment in new residential buildings. These standards should be concerned not only with a reduction in internally generated and transmitted noise in multi-unit dwellings,but also establish allowable internal noise limits for all new residential structures in areas of high noise exposure.	The Department of Building and Safety is in the process of adopting all State Building code requirements for noise and energy insulation.
Noise generated by mechanical equipment-- air conditioners, blowers, heaters, plumbing devices, etc. -- should be further controlled through the building code.	Now controlled by Noise Regulation Ordinance (Ordinance 144,331) and the Building Code.
All City departments involved in the specification and purchase of noise generating equipment, machinery or vehicles should be conscious of the purchasing power of the City.	Environmental Contract Committee established by Ordinance 143,687 in August, 1972 for this purpose.

RECOMMENDATIONS: 1970	STATUS: 1976-77
Care should be taken in specification writing to assure that the City uses noise criteria which recognize advances in the state of the art and specifies equipment with noise levels even lower than allowable limits.	
The municipal code should establish zones of noise exposure, specifying sound attenuation requirements within specific distances of freeways, high-volume surface streets, airports, etc.	State law has established zones of noise exposure for new freeway construction.
Conditional use and other zoning requests should be carefully weighed for their potential environmental impact before any permit is issued.	The conditional use permits and zoning include environmental considerations before being granted under the California Environmental Quality Act.

VISUAL QUALITY

RECOMMENDATIONS: 1970	STATUS: 1976-77
The City's present policy of promoting underground utilities should be strengthened by stating that ultimately all utility lines must be placed underground. To support this policy the City should aggressively implement a long-range program to remove overhead utilities.	The Department of Water and Power has an extensive conversion program which has resulted in undergrounding of 54.4 miles of pole lines during the last five years. Also, Underground Utility Districts, were enabled by Ordinance 145,148, in 1973. Subdivisions have been required to underground utilities since

RECOMMENDATIONS: 1970	STATUS: 1976-77
The possibilities for reducing costs and developing incentives for property owners to underground utility lines on their property should be given continuing study and application.	1966.
The Municipal Code should be modified to require that: a. Advertising matter on all signs within the City deal with the name or nature of business performed or service rendered upon the premises. b. No signs be permitted on vacant or unimproved land other than those signs which deal with the sale or lease of property. c. The projection of signs from walls and roof ridges be limited. A restriction of not more than 60" above a roof and not more than 30" beyond a wall is recommended. d. No sign which moves or rotates be permitted including those which rely on lighting for internal motion.	A proposed Billboard and Sign Ordinance which would have included controls on the location and characteristics of signs was disapproved by City Council in 1975.

RECOMMENDATIONS: 1970	STATUS: 1976-77
e. Pole or ground signs not exceed the height of the building which they accompany and in any case not extend more than 15 feet above the ground.	
Examination of the laws and implementation required to expand the street-tree planting program and provide landscaped buffering of parking lots and used car lots.	The policy approved by City Council to replace damaged or dead trees regardless of age, the Downtown Street Tree program, and the formation of the West Los Angeles Conservation District, have expanded this program to a degree. Budget constraints limit this function. Legislation and implementation for landscaping/buffering is included as Planning Legislation in the General Plan.
Careful attention should be given to esthetic considerations in street opening and widening projects.	Recent street opening and widening projects have been more sensitive to design considerations. This has been particularly so in such environmentally fragile areas as the Santa Monica Mountains. The City Planning Commission approved the policy plan for Scenic Highways in March, 1977.

RECOMMENDATIONS: 1970	STATUS: 1976-77
The City should support a program for the beautification of flood con-channels--particularly the Los Angeles River.	The Los Angeles County Flood Control District has had 28 landscaping projects in the last five years. These have been supported by the City, in some cases, financially. See Appendix.
In the recreation and parks program there should be emphasis on small or vest-pocket parks in neighborhood areas. Such parks could do much to enhance property values and encourage other neighborhood improvements.	Several areas of the City have been provided with such parks, i.e. Triangle, East Wilmington, Pico Union, Watts, Ramona Gardens.
At all public building sites there must be increased attention to landscape design and maintenance. Continuing emphasis should be placed upon excellence in architecture.	Construction of City Hall East and its surrounding Mall exemplifies the increased emphasis on architectural and landscape excellence.
Preservation of historic and cultural sites is another vital part of ensuring visual richness and delight in the City.	Numerous sites have been and are continually being added as designated historic and cultural monuments, by the Cultural Heritage Board. D.E.Q. and the Municipal Arts Department are working together on an archaeological and paleontological site protection study.

RECOMMENDATIONS: 1970	STATUS: 1976-77
Maintenance standards on private buildings and open spaces should be enforced to reduce an all too prevalent form of visual blight.	Part of City Code en forcement and fire protection procedures.
Street intersections, traffic islands and other particularly visible locations should be carefully designed and landscaped.	Increased emphasis in design and landscaping is being carried out by both the Traffic and Engineering departments.
Skyline impressions as seen along the coast, from elevated freeways or other approaches to core areas should be considered in applying land use and zoning controls. New methods of urban design coordination and control should be developed and applied.	The Scenic Highways and Corridors Plan approved by the City Planning Commission in March, 1977, includes visual treatment of views from specified highways. Section 17.05 of the Municipal Code (Ord. 146,585) protecting the Mulholland Scenic Parkway was adopted November 10, 1974.
The City should develop and maintain an inventory of all natural assets, including, but not restricted to, beaches, mountain areas, parks and other publicly-owned open spaces.	An inventory of many key features is included in the Conservation and Open Space elements of the General Plan adopted in 1973. In addition, DEQ currently is including these items in an Environmental Alert Mapping System.
Encourage the City Planning Department to complete an open space element of the General Plan at an early date.	Completed and adopted by City Council in June, 1973.

RECOMMENDATIONS: 1970	STATUS: 1976-77
The City should make maximum use of the provisions for obtaining park areas as authorized by the State in the Quimby Act of 1965.	Since effectuation of the Quimby Bill in 1971, as of May 1, 1976, $4,107,703.85 has been received and $634,093.13 has been expanded leaving a balance of $3,473,610.72.
The City should actively support federal legislation to establish a National Urban Park in the Santa Monica Mountains.	The City did not take a position in support of recent federal legislation for a national urban park in the Santa Monica Mountains (Tunney/Bell Bills - S.1640). Instead, support was given for legislation for parks in several areas within L.A., rather than solely for the Santa Monica Mountains.
Immediate steps are needed to develop and implement a program to obtain scenic easements which will enhance and protect views along Mulholland Drive.	Report of the Citizens' Advisory Committee on the Mulholland Scenic Parkway adopted by Council Resolution, and Ordinance 146,585 (11-10-74) for new subdivisions within corridor.
The Santa Monica Mountains should receive the highest priority for possible zoning rollbacks.(9)	Adopted Community Plans for the Santa Monica Mountains contain density reduction policies including slope-density formulas for new development.

CHAPTER III

PROGRESS TOWARD ENVIRONMENTAL IMPROVEMENT:

ACTIVITIES OF CITY AGENCIES

This first State of the Environment Report is not intended to be all inclusive. It is the beginning of a long term effort to gather together and organize information about environmental activities, issues and conditions within the City. The material in this chapter was provided by the participating agencies and no attempt was made to supplement or verify the information provided. Additional information will be gathered in subsequent State of the Environment Reports.

During the fall and winter of 1976 - 1977 the Department of Environmental Quality interviewed approximately fifty leaders of City, County, and State agencies, public utilities and the private sector to obtain statements concerning environmental activities and issues experienced since "Actions on the Los Angeles Environment" was published in 1970. Chapter III reports on City agencies and Chapter IV reports on external public activity.

This chapter is in alphabetical order by City agency. Each agency section contains information on the agency's environmental activities (1970-1976/77) including land use, air, water and other environmental information; and where provided by the agency, environmental problems faced and the agency's recommendations for environmental improvement.

Additional information about public and private environmental activities and conditions in the City of Los Angeles is welcomed by the Environmental Quality Department. Please mail to: Deparment of Environmental Quality, Room 550 City Hall East, Los Angeles, California, 90012.

AIRPORTS

While passenger traffic at Los Angeles International Airport has increased + 7.43% (1972-1975), the airport's effect upon the environment had diminished:

- Noise pollution has been reduced -48.97%.
- Air pollution has been reduced - 15.32%.
- Consumption of electrical power has been reduced - 17%.
- Consumption of natural gas has been reduced - 22.9%.

The following serves as detailed narratives of the above highlights.

AIR:

The figures indicate a total reduction of -15.32% in tons/year. The actual figures are as follows:

	1972:	1975:	Percentage:
CO	53,413	44,899	-15.94%
NO_x	9,768	11,078	+13.41%
SO2	757	689	- 8.98%
Particulates	1,248	1,139	- 8.73%
Total HC	17,710	12,395	-30.01%
TOTAL	82,896	70,200	-15.32%

Airports Letters 10-20-76
2-11-77

In an effort to reduce LAX-associated vehicular traffic, total vehicle miles traveled (VMT) and to improve air quality, the Department of Airports constructed a Remote Terminal at the Van Nuys Airport, initiating its FlyAway Bus Service in July of 1975. Between July of 1975 and January of 1977, this service has transported a total of 364,603 passengers which represents a VMT savings of approximately 17,500,944 miles. It has also taken steps to further reduce vehicular pollution through the development of remote parking lots.

CONSERVATION:

These figures also cover a 3-year period:

MONTHLY AVERAGE:

	1973:	1976:	Percentage Change:
Electrical Power (Kilo-watts)	6,332,551	5,253,956	-17%
Natural Gas (Thermal Units)	162,437	125,307	-22.9%
Gasoline (Gallons)	16,662	19,905	+19.5%

The increase in gasoline usage has been necessitated by a need for greater security coverage and maintenance of outlying airports.

NOISE:

In 1972, there were 165,400 residents and 12,700 off-site acres in LAX's 65 CNEL Contour. In 1975, the contour had diminished to 84,400 people and 6500 acres. This is a reduction of -48.97% in impacted-residents.

This reduction is due to a number of factors:

1. Load Factor is up +17.4%.

   In 1972, the average was 59.4 persons per aircraft operation (in or out). In 1975, the average was up to 69.74 persons.

2. Aircraft operations have decreased -8.4%. They are down 31,473 from 1972's 371,563.

3. The glide slope has been raised to 3-degrees and over-ocean operations have been instituted from 12 pm to 6:30 am.

4. Noise Monitoring System has been installed at a cost of $261,000 to specifically identify the noise problem.

5. Land Acquisition in the more noise sensitive areas has cost $160 million.

WASTES:

In 1972, LAX generated 1.6 million gallons of waste water per day and 86 tons of solid waste per day. LAX sewage flow amounts to 1/200th of Hyperion's average daily flow.

LAX's solid waste factor amounts to only 2% of the residential refuse disposed of by the Bureau of Sanitation. Actual production is considered low at 26 pounds per day per acre, compared to 35-700 for residential, or 700-7000 for commercial. (There are no comparison figures available on either liquid or solid wastes, but the LAX EIR estimates only "minimal impact" continuing at the current percentage through 1990.)

PROGRAMS:

Over the years, the Department has initiated and supported numerous programs to improve ecological conditions. These include:

1. Noise Abatement Regulations are currently before the City Council for adoption. This program's goal is to require all aircraft operating at LAX to be "FAR 36 quiet" within five years.

2. The Department has strenuously supported nation-wide programs, such as retrofit, new engines, two-segment approaches, and FAA Noise policy development.

3. Study of the concept of a noise wall between the airport and the residential areas for noise abatement purposes.

4. Sound-proofing of homes in the area was studied to determine the effectiveness of various methods.

5. This Department has worked towards effective development of area-wide organizations and projects to benefit the whole community (SCAG, a Proposed Regional Airport Authority, Airport Land Use commission, People Mover System, and Century Freeway). (10)

ANIMAL REGULATION

BIOTA:

Excess dog and cat populations create many peripheral problems that effect the environment. In November, 1972, the Green Power Foundation conducted an ecology opinion survey of residents in the South Central Los Angeles area. The majority of those surveyed responded that wandering cats and dogs were the single greatest cause of pollution in their environment. Loose, wandering dogs and cats endanger public health and safety by creating situations involving animal bites, accidents, potential for rabies and zoonotic disease transmission.

From the fiscal years of 1970-71 to present, the Department of Animal Regulation has realized good progress in areas involving reductions in excess dog and cat populations.

The following data relates to animals impounded and authorized in City shelters. Although a downward trend towards numbers of animals may be observed, it should be noted that with increased urbanization and residents' desires to own pets, an increase in dog and cat populations may be realized in years to come:

1. Animals Brought to City Shelters by the Public

1970-71	1974-75	Projected 1976-77
100,379	65,957	61,016

(A 34% reduction in animals for this category between 1970-71 to 1974-75)

2. Animals Picked Up Resulting From Citizen Requests

1970-71	1974-75	Projected 1976-77
36,366	33,490	32,017

(A 7% reduction in animals for this category between 1970-71 to 1974-75)

3. Animals Euthanized in City Shelters

1970-71	1974-75	Projected 1976-77
110,835	83,199	83,000

(A 25% reduction in animals for this category between 1970-71 to 1974-75)

The Department also provides a Humane Education Program that reaches approximately 75,000 school age children yearly and the public low cost Spay and Neuter Program sterilizes some 13,000 pets on an annual basis.

ANIMAL REGULATION
(Cont.)

Problem Areas

1. Rabies Control - Although the City of Los Angeles has not had a reported case of rabies in a domestic animal for many years, it remains that California is a rabies endemic area. Many cities and counties thoughout the State report increasing numbers of rabies in wildlife and domestic animals.

2. With encroaching urbanization, there will probably be increases in certain forms of environmental problems involving pet wastes, noise, disease and animal bites.

3. Although there currently exists a downward trend in excess pet populations within the City, there appears an increase in numbers of residents desiring pets for protection and companionship. It is very difficult to determine what effect this will have upon any environment without accurate knowledge of existing dog and cat population.

Recommendations

While the Department maintains sound programs of animal control, it must do so utilizing inferential data obtained through licensing and complaint records. This situation makes it extremely difficult to estimate owned and/or unowned animal populations. In the Department's determination, it becomes absolutely critical to have valid animal census data so that existing and future problems may be determined to allow for subsequent programs of animal care and control to be established. (11)

BUILDING AND SAFETY

AESTHETICS:

Illegal Sign Removal Ordinances:

In November 1973, the City Council passed an ordinance establishing a procedure for the removal of illegal signs from vacant properties and authorizing personnel for the program. The procedure includes removal of illegal signs by the Department of Public Works if the owner fails to comply with the Department of Building and Safety Order within 10 days.

Illegal Sign Inspection 7-1-70 to 6-30-76	Number of Signs Inspected 1,728
	Number of Orders Written 1,129

Automobile Repair Facility Inspections:

In March 1974, by resolution, the City Council authorized personnel to conduct inspections of existing automobile repair facilities throughout the City, thus creating the Auto Repair Establishment Inspection Unit. This action was initiated to eliminate the blight caused by the abundance of partially dismantled and wrecked automobiles being stored and repaired in the open, in violation of the Zoning Ordinance.

Auto Repair Establishment Inspection 7-1-70 to 6-30-76	Number of Sites Inspected 1,226
	Number of Orders Written 1,075

Abandoned Vehicle Inspection:

Abandoned Vehicle Inspection deals with the ever-increasing problem of abandoned and vandalized vehicles which are located on private property.

During the period covered by this report numerous vehicles were removed from private property. Most of these removals were by the property owner or vehicle owner as a result of an order from the Department; however, some of these were removed by Official Police Garages after a public hearing was held declaring the vehicle to be a public nuisance.

Abandoned Vehicle Inspection 7-1-70 to 6-30-76	Number of Complaints Rec. 5,902
	Number of Vehicles Removed (By owner & City) 5,313

CONSERVATION:

Housing Inspection Program:

The Housing Inspection Program was started in 1968 as a requirement of the Federal Government for Workable Program Certification. The Program entails a systematic area by area, house by house, inspection of all of the dwelling units in the City of Los Angeles. The purpose of the inspections is to assure that every dwelling unit in every neighborhood meets a reasonable standard of repair, stability and safety in order to arrest deterioration and prevent blight in residential neighborhoods. The City was originally committed to inspecting 40,000 dwelling units a year in conjunction with the Workable Program. The Workable Program was subsequently discontinued and replaced with the Housing and Community Development Act of 1974. Under the Act the Conservation Bureau is to inspect approximately 24,000 dwelling units per year.

Housing Inspection Program 7-1-70 to 6-30-76	Number of Dwelling Units Inspected 256,502
	Number of Buildings Repaired 70,239
	Number of Dwelling Units Repaired 71,563

Housing Inspection Service:

The ordinance creating the Housing Inspection Service Activity was passed by the City Council on November 28, 1973. Under it, a residential property owner may apply for a City inspection to determine if his property conforms to City codes. When property is found in compliance or the required corrections are made, the City issues a Certificate of Compliance. The Program has been well received by the public and compliance has been excellent.

Housing Inspection Service 7-1-70 to 6-30-76	Number of Requests Received 1,826

TABLE 5.A. I

CONSERVATION BUREAU

FIVE YEAR SUMMARY OF BUILDING REHABILITATION ACTIVITY

1970-1975

	COMMERCIAL BUILDINGS		RESIDENTIAL BUILDINGS			
Fiscal Year	No. of Bldgs. Repaired	No. of Bldgs. Demolished	No. of Bldgs. Repaired	Dwelling Units Contained in Bldgs. Repaired	No. of Bldgs. Demolished	Dwelling Units Contained in Bldgs. Demolished
1970-71	726	258	17,153	15,471	1,495	819
1971-72	810	115	10,345	14,085	792	841
1972-73	1,164	118	10,252	13,758	581	599
1973-74	1,214	145	11,035	12,149	601	766
1974-75	1,811	109	9,746	7,296	551	685
TOTALS	5,725	745	58,531	62,759	4,020	3,710

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(Bldg. & Safety (Cont.)

ENERGY:

On February 22, 1975, State regulations requiring thermal insulation for dwellings and residential structures became effective. Between March 1, 1975, and September 30, 1976, 5334 building permits were issued for buildings which must comply with these regulations. These buildings contain 15,209 dwelling units.

LAND USE:

Zoning Enforcement:

On February 1, 1975, the Conservation Bureau was allocated personnel under CETA Funding to initiate a zoning enforcement unit. This inspection activity was initially limited to the inspection of properties on which conditional use variances had expired. The purpose was to determine if the use permitted by the variance had been discontinued or if an application had been filed for a new variance.

The inspection activity was later extended to include Zoning Administrator and Board of Zoning Adjustment Cases. The purpose of these inspections was to determine if the present operation was in compliance with all of the terms and conditions of the variance.

Zoning Enforcement	Number of Cases
7-1-70 to 6-30-76	Handled 3,929

Complaint and Referral Inspections:

Inspectors working in complaint and referral inspection are responsible for processing housing complaints and referrals from all sources, and for following up on all uncompleted housing surveys.

Complaints referred to include such problems as vacant and vandalized buildings, neglected and dilapidated buildings and storage of trash and junk. Corrective Orders are written to correct these undesirable conditions.

Complaint & Referral Inspection 7-1-70 to 6-30-76	Number of Complaints Received 29,590

Relocation Inspection:

Relocation inspection is responsible for applying and enforcing all City ordinances which relate to the relocation of buildings in the City of Los Angeles.

Relocation Inspection 7-1-70 to 6-30-76	Number of Buildings Relocated 1,210

NOISE:

On April 1, 1974, an ordinance requiring sound transmission control between dwelling units in residential buildings became effective. Between April 1, 1974, and September 30, 1976, 1292 building permits were issued for buildings which must comply with these requirements. These buildings contain 16,611 dwelling units.

In January 1973, the City Council passed an ordinance prohibiting emission or creation of noise beyond certain levels. The Conservation Bureau was given the responsibility of enforcing the part of the ordinance which deals with air conditioning, refrigeration, heating, pumping and filtering equipment.

Noise Inspection 7-1-70 to 6-30-76	Number of Complaints Received 339
	Number of Cases Resolved 339

SAFETY:

Demolition of Hazardous Structures:

Contract demolition inspection inspectors are responsible for the removal of vacant, substandard or dangerous buildings, vacant buildings that have been abandoned and vandalized, and buildings that have been damaged by earth slides or other natural causes.

When the owner fails to repair or demolish hazardous buildings after he has been notified, this inspection activity solicits bids from private contractors and awards demolition contracts for their removal. The costs of the work plus an administrative fee is then assessed against the property. City-owned buildings are referred to this group for demolition to expedite their removal and to minimize their expense to the City.

Contract Demolition Inspection 7-1-70 to 6-30-76	Number of Buildings Demolished (By owner or by City Contract) 2,646

Fire Safety Inspections:

Ordinance No. 142,713 (Resulting from the Ponet Square Fire) which became effective January 3, 1972, added several sections to the Building Code to deal with certain fire safety hazards in existing apartment and hotel buildings. The Ordinance set forth retroactive requirements to assure a reasonable degree of fire safety for occupants of multiple residential buildings over two stories in height.

Fire Safety Inspection 7-1-70 to 6-30-76	Number of Buildings Inspected 1,643
	Number of Buildings Corrected 1,387

Commercial Structure Inspection:

Commercial complaint and referral inspection enforces the Building Code as it applies to the maintenance, use and occupancy of existing commercial buildings and to residential buildings with more than two dwelling units; temporary structures, platforms and bleachers; and tents and other miscellaneous structures. The safety of the public is of prime concern. (12)

Commerical Inspection 7-1-70 to 6-30-76	Number of Buildings Repaired 7,433

COMMUNITY REDEVELOPMENT

The Community Redevelopment Agency is fulfilling its responsibility of improving environmental conditions through the redevelopment, rehabilitation and conservation of residential, commercial and industrial areas of the City.

The CRA was created in 1948 to deal with the problems of urban decay and blight within the City of Los Angeles. Presently, eleven redevelopment projects have received City Council approval and are in various stages of implementation.

The scope of these projects vary from the creation of a new and environmentally outstanding central core to the creation of new housing along with the conservation of the existing housing stock.

In addition, in late 1974, the Mayor and the City Council created the neighborhood Conservation Project Program to assist in preserving the City's housing inventory. At the Mayor's request, the CRA was asked to administer this program for the City.

Redevelopment Projects:

BEACON STREET -- This 60-acre project, core of the City's San Pedro community, overlooks the Los Angeles Harbor. Housing, offices, commercial and government buildings and shops and markets are called for in the redvelopment plan. Already completed are a 180-unit senior citizens apartment complex and 113 units of housing for families with low and moderate incomes and two acres of park adjacent to the branch City Hall and the old ferry terminal building. Completing the project will be retail, commercial and governmental facilities to serve the needs of the harbor community.

BUNKER HILL -- Signature of the City in the heart of downtown Los Angeles, this 136-acre project, with its beautifully landscaped plazas and open spaces, is being developed with housing, hotels, office buildings and commercial facilities. Today it includes the 725-unit Bunker Hill Towers apartment complex, the headquarters buildings for the Security Pacific Bank and the Union Bank, the unique Los Angeles World Trade Center, and just recently, on January 1, 1977, the architecturally significant, 1,544 room Los Angeles Bonaventure Hotel opened its doors to an admiring public. Additional housing, including 1,100 units for senior citizens, is on the drawing boards and expected to be under construction soon.

Aesthetics:

Concern for the aesthetics of Bunker Hill caused the development of green open spaces around and through the various developments, an attractive Yang-Na park on the roof of the Atlantic Richfield parking garage and two other small parks, one a singularly attractive rock garden under the Fourth Street viaduct.

To enhance the attractiveness and marketability of the project, the Bunker Hill Redevelopment Plan provides that developers install fine art works as part of their undertakings. Private developers are complying with this requirement. To date:

- The Los Angeles World Trade Center's main concourse features art work in the form of the sculptured history of world trade which lines the upper level of the mall.

- A modern stabile by noted sculptor Alexander Calder which graces the main entrance to the Security Pacific Bank building.

- The Los Angeles Bonaventure Hotel. The building, with its unique architecture, has been acclaimed by critics as a masterpiece in fine arts design.

- To complement these private efforts, the CRA, with the approval of the federal government, will use $500,000 as part of the local share of project costs for fine art works in public places.

HOOVER -- Immediately adjacent to the University of Southern California, this 166-acre project is nearing completion. All the land is either sold for development or committed for sale. Within it has been developed a three acre pedestrian mall with fountain, the University Village Shopping Center, the Campus Shopping Center, the University Hilton Hotel and other commercial activities. It has afforded the University of Southern California campus expansion, including student housing and educational as well as parking facilities. Other campus related facilities are the Hebrew Union College, the Dr. Mary McLeod Bethune branch library, Hillel House and two churches.

University Gardens with 113 units of low and moderate housing has enjoyed one hundred percent occupancy since its opening. Now under construction are 170 units of housing for senior citizens and 150 units of family housing.

LITTLE TOKYO -- An international community in downtown Los Angeles adjoining the Civic Center, this 60-acre project includes churches, housing, a hotel and a planned cultural center. Developers are offered opportunities for commercial, residential, office buildings and parking structures.

So far constructed are the Little Tokyo Towers, a 301-unit senior citizens housing complex and the Higashi Hongwanji Buddhist Temple and Union Church, both of the latter featuring fine art works signifying their religion and culture. Planned for development in the near future are 100 units of low cost housing, a shopping center and a cultural center. Now under construction are the New Otani Hotel and Gardens.

MONTEREY HILLS -- Six miles from the Civic Center, this project includes 211 acres of beautiful hillside view sites for up to 1,700 dwelling units, with a small retail shopping center. At least 15 percent of the townhouses will be for low and moderate income families.

NORMANDIE/5 and PICO UNION 1 and 2 -- Each project offers opportunities for the rehabilitation of single and multi-family homes and residential properties, as well as the development of new housing, commercial, office and light industrial facilities. These three projects encompass 611 acres. Eighty-six new housing units have been constructed here to replace housing found infeasible for rehabilitation.

WATTS -- The development includes low and moderate income housing for families and senior citizens, and commercial and institutional facilities. One hundred and fourteen units of housing have been constructed and another 181 units are expected to be completed by mid-summer. Construction should begin later this year on still another 104 units. Completed projects include The Westminister Neighborhood Center, the Watts Neighborhood Center, the Kaiser Permanente Watts Counseling Center, and a new facility for the Watts Health Center.

WILMINGTON/LOS ANGELES HARBOR INDUSTRIAL CENTER -- The largest continuous industrial site in the Los Angeles South Bay, this project consists of over 200 acres of prime industrial land, with excellent access to freeways, railroads and shipping.

Already completed is "E" Street, which will be the catalyst for the project, serving as the arterial spine of the area. The street has been enlarged to industrial standards, including a 100-foot-wide right-of-way. The extended street stretches from Broad Avenue to Alameda Street. Formerly the scene of innumerable junk yards, old and dilapidated oil storage facilities and houses, this project is designed to attract industry that will provide employment for the area.

BIOTA

The CRA has planted over 3,600 street trees throughout in redevelopment projects and Neighborhood Conservation Program areas (Beacon Street, Bunker Hill, Hoover, Little Tokyo, Normandie/5, Pico Union 1, Watts and Highland Park).

CONSERVATION

As of March, 1977, 120 units of housing in the NCP areas have been financed by the CRA through rehabilitation loans. In addition more than 1135 units have been completely rehabilitated in the Pico Union 1 and Normandie/5 projects and another 110 units are in some stage of rehabilitation. Completely voluntary Neighborhood Conservation Program projects are located in the Oakwood (Venice), West Adams, Highland Park, North Atwater, North Hollywood and Van Nuys areas of the City.

Present economic forecasts indicate that new housing will continue to increase in cost. Therefore, the preserving of the City's housing inventory through the NCP is considered a primary solution to the housing needs of the citizens of Los Angeles.

ENERGY

The CRA provides 20 percent of the costs for the operation of the minibus system throughout downtown Los Angeles. The service, which runs through the Bunker Hill project, enhances the marketability of project sites because it accommodates the circulation of employees, shoppers, visitors and others in the project area and promotes the interrelationship of the project area with other central city locations. It is anticipated that the minibus service will continue for four more years until it is replaced by the planned downtown people mover system.

The CRA has committed $451,000 of tax increment funds to meet initial costs of planning the system which is to run through the Bunker Hill project area. The Department of Transportation's Urban Mass Transit Administration recently announced that the City has been awarded a grant of $126 million (80 percent of the cost) to design and build the system.

Also in the Bunker Hill project, the Agency caused to be developed a central heating and cooling facility. This plant provides both heated and chilled water for all new developments in the project. Additional components can be added to increase its output as new developments are completed.

The central plant facility provides a substantial savings in energy consumption as well as creating a much more pleasing aesthetic environment by eliminating the need for rooftop cooling towers and related equipment. (13)

ENGINEERING

AESTHETICS

Of the many Public Works improvements such as street opening and widenings, sewer and storm drain construction, some of them have a more widely recognized beneficial effect upon the environment. The more visible projects such as landscaping projects and the planting of parkway trees would fall into this category. However, other less visible projects contribute significantly to the quality of the environment such as replacement of private disposal facilities with sewer systems, the control of stormwater runoff, and the prevention of erosion and siltation into the Port of Los Angeles by construction of sewers and storm drains.

Since 1970, 127 landscaping projects, including trees have been completed at a cost of $4,077,000. Street improvement projects have also resulted in the planting of 24,000 parkway trees at a cost of $4,200,000. In addition, street frontage improvements such as curbs, gutters, sidewalks, street lights and bikeways contribute to the aesthetic enhancement of the urban environment. During the period from 1970 to the present the Bureau has been responsible for constructing 980 projects at a total cost of $176,400,000.

WASTES

Water quality in the Los Angeles harbor has been steadily improving as a result of cessation of various industrial discharges, the construction of a $4,400,000 sewage collection system in the harbor area and the upgrading of Terminal Island Treatment Plant at a cost of $15,450,000. A $13,750,000 contact has been awarded for Unit II-A at Terminal Island Treatment Plant which, when completed will provide the highest grade of sewage treatment for all sewage effluent discharged into the harbor waters.

Upgrading of sewage treatment is also in progress at the Hyperion Treatment Plant which discharges treated effluent and sewage sludge into Santa Monica Bay. Contracts totalling $5,120,000 have already been completed at Hyperion and an additional $5,270,000 will be expended for construction and remodeling to convert the entire plant capacity to secondary treatment. Additional funds have been expended for sludge processing and disposal. An Environmental Protection Agency (EPA) mandate presently requires the cessation of sewage sludge discharge into the ocean by 1980. Alternative measures for processing and/or disposal of sludge are being studied under a joint powers agreement involving the City of Los Angeles, Los Angeles and Orange Counties, the State Water Resources Control Board and the EPA. This Wastewater Solids Management Program was entered into by the City of Los Angeles because it is felt that disposing of all sludge on land by landfilling (immediate alternative advocated by the EPA) will result in a net degradation of the environment. The City's present position is that additional study is needed to more accurately assess the potential environmental impacts of the sludge processing or disposal alternatives, including that of deep ocean sludge disposal.

WATER

Since 1970, this Bureau has been instrumental in the construction of the Los Angeles-Glendale Water Reclamation Plant at a cost of $11,280,000. This treatment plant can reclaim 20 million gallons per day (mgd) from municipal sewage and has the capacity to reclaim 50 mgd. The present use of the reclaimed water is for irrigation of a portion of Griffith Park and as cooling water for the City of Glendale's electric generating Steam power plant. Further, environmental analysis has been completed for the proposed Sepulveda Water Reclamation Plant which would reclaim even larger volumes of water from wastewater for irrigation and potential groundwater recharge. (14)

HARBOR

BIOTA:

Four rare and endangered species of birds have been identified in the Los Angeles Harbor area. The California Least tern was reported by a representative of the Least tern Recovery Group (set up under the Federal RESA of 1973) that in 1974, there were dirt hauling activities which interfered with nesting of the California Least tern. In 1975, the Harbor Department was again notified of the Least tern's presence, and the area was fenced off and "No Trespassing" signs were erected. Forty nests were counted, and there were probably 24 nesting pairs. Thirty-five fledgings were reared and the birds migrated south in the fall without incident. This year the birds chose a spot on Reeves Field to nest. Reeves Field was already a limited access facility so it was only necessary to post the area with signs. Fifty nests were counted which probably represented 60 nesting pairs. This may have been a summer cycle of mating and nesting in addition to a spring cycle. The rate of young per nest was very high, and probably 90 young were hatched and matured.

Brown pelicans are numerous in the Harbor. Although they do not nest here, they roost and feed in this area.

The Belding Savannah Sparrow and the Peregrine Falcon have also been sighted, but no nesting activities have been observed.

One protected species of fish, the bright orange Garibaldi, inhabits the rocky subtidal habitats inside the breakwater.

A pair of dolphins caused quite a sensation recently when they were seen cavorting in the West Basin, an inner area of the Port where quieter waters are less affected by changes in tides and currents, and therefore more prone to possible pollution.

As more pollution control has been applied at point sources, the higher quality of Harbor water has resulted in both a greater species diversity and abundance of marine life. Currently, there are about 132 species of fish and about 450 species of invertebrate marine animals which have established habitats in the Harbor.

DOMESTIC AND SOLID WASTES:

The Port of Los Angeles employs a 25-man crew for debris patrol and cleanup of the Harbor area, which totals about 14 miles of wharves, with more than 7,000 acres of land and water. Approximately 20 tons of debris are collected each day by trash trucks, three refuse boats and a motor sweeper, which services every wharf at the Port at least once a week.

The Board of Harbor Commissioners enacted a sewage removal program which authorized the construction of a massive sewer system throughout the Harbor. A ten-phase construction project, the completed sewer lines might well run to a total cost of $7 million, and will serve all segments of the Port.

A sewage treatment plant on Terminal Island at the Port, under the jurisdiction of the City of Los Angeles' Bureau of Sanitation will be improved in four stages at a cost of up to $78 million. As of March 1977, Phase I will be completed.

WATER:

There are several major sources of possible water degradation at the Port of Los Angeles, some of which in recent years have made it very difficult for the water in certain areas to sustain a good marine life environment. Fish and plant life had either diminished or even had disappeared from these locations.

Chemicals such as fertilizers, detergents, oil and gasoline from storm drains and even dry weather run-off from the Gardena Valley and the Palos Verdes Hills are major sources of pollution.

Storm drains leading into the Port's West Basin alone carry run-off from 11,000 "asphalt acres". This does not include water draining from roofs and planted areas, which would more than double the asphalt acre figure. This drainage carries countless tons of oxygen-consuming organic and inorganic material, e.g., dead animals and insects, rotting vegetation.

The Dominguez Channel is another major conduit for storm drain run-off from the Gardena Valley, and was a "natural" aqueduct for discharges from numerous businesses and industrial sites. In fact, from about 57 different locations 32 companies or agencies once were dumping nearly 400 million gallons of polluted water every day. Another 1.5 million gallons per day were discharged into 16 separate storm drains by 27 companies or agencies. This also eventually was deposited in the harbor.

Until a few years ago the dumping of sewage and industrial wastes into the Harbor and Dominguez Channel left the waters depleted of oxygen. Thus, most forms of marine life could not exist in the inner harbor area.

The State and Regional Water Quality Control Boards, backed up by the Porter-Cologne Water Quality Control Act of 1969 and the Federal Water Pollution Control Act Amendments of 1972, were charged with implementing a massive program to protect the state's waters. At this same time the Harbor Department initiated an intensive program of eliminating pollution from all sources within its jurisdiction. As a result of these efforts the water quality improved dramatically in the early 1970's. The oxygen levels thoughout the harbor is routinely above the 5 ppm necessary to maintain a healthy marine ecosystem. The oily slick formerly accepted as a normal part of a working harbor's environment is now a rare occurrence. The Los Angeles Harbor Department conducts a monthly 28-station water quality monitoring program thoughout the harbor to

maintain a continual surveillance of water quality. The tenants of the harbor are also expending money for water quality improvement. At one major petroleum terminal in the Port they have installed a $650,000 ballast treatment system for ocean-going vessels. The fish canneries have been converting to "dry" systems in production, rather than flume methods of conveying fish which consumes about one-tenth of the water previously consumed. In addition all three fish canneries have installed primary waste water treatment plants. Oil refineries near the harbor have invested from $2 - 3 million in equipment to guarantee that their industrial discharges into the Port will meet water quality standards. In 1972, 14 industries along the Dominguez Channel had already spent $54 million on improving or correcting effluents at the Port.

PLANS AND PROGRAMS

A contingency plan at the Port of Los Angeles has been developed in accordance with the Port's Tariff No. 3, part of the L.A. Municipal Code, Division 95. The purpose of this contingency plan is to provide readily available information concerning prevention of pollution of waters of Los Angeles Harbor by spillage of petroleum or petro-chemicals from any cause or any source; the necessity of immediate reporting to the Los Angeles Harbor Department; the prompt containment of the spilled oil or petro-chemicals in the spill area to mitigate damage; and the required removal of all spilled petroleum or petro-chemicals from Los Angeles Harbor waters.

Relevant to environmental impact studies the Environmental Office of the Harbor Department has conducted research in the following areas:

- Remote Sensing of Los Angeles Harbor Ecosystems.

- Effects of sewage spills on the main channel marine environment.

- Testing of experimental oil detection equipment.
- Dredge material treatment as an environmental mitigation.
- Terrestrial and underwater acoustical profile of the harbor.
- Mariculture feasibility for Los Angeles Harbor.
- Botanical and wildlife survey of the harbor.

Upon request, the Environmental Analysis Office has available a slide and lecture program for local colleges and universities.

During the past year, the organization, personnel structure and procedures for the Environmental Analysis Office were written in manual form.

Finally, in response to the Air Quality Management District, the Environmental Analysis Office prepared an Air Pollution Episode Plan. The Plan details the procedures for Harbor Department personnel to follow during the first, second and third stages of air pollution episodes. (15)

MUNICIPAL ARTS

CONSERVATION

Through its power for declaration of buildings, structures and sites as Historic-Cultural Monuments, the Cultural Heritage Board has been providing effective measures for their preservation as part of the present environment. Under the provisions of Ordinance No. 121,971, the Board is in a position to suspend the issuance of permits for demolition, major alteration or removal of any designated Historic-Cultural Monument within the City of Los Angeles.

Through its non-profit organization, the Cultural Heritage Foundation, Inc., the Heritage Square development off the Pasadena Freeway at Avenue 43 is slowly, but expertly, coming to fruition. This project which is creating a Victorian-era park with authentic historic buildings of the period, accomplishes a two-fold goal, i.e., the preservation of a structure which might otherwise be lost to future generations, and the creation of a park-like site where citizens of today and tomorrow can have a glimpse of the environment as it was in the past. (16)

OFF-STREET PARKING

AESTHETICS:

Beginning in 1962, beautification was added to parking improvements under the jurisdiction of the Los Angeles Parking Commission and the Off Street Parking Agency. From 1962 to the passage of Ordinance No. 138,859, adopted by the City Council at its meeting on June 17, 1969 which provided for the improvement and beautification of automobile parking areas, the Agency added landscaped areas to 17 of its facilities. Since that time, 21 facilities were completed with designs to upgrade and improve general construction and aesthetic features of these parking spaces. Designs now include bicycle racks where appropriate and signs have been placed at each facility to encourage carpooling.

Initial costs of these facilities was higher and has considerably increased maintenance costs for gardening services for the lots. It also has added utility charges for watering of the plants. The general effect of these environmental changes is desirable and has made a positive contribution to upgrading the older commercial areas.

The Department of Recreation and Parks maintains the approximately 20,000 square feet of landscaped areas at this Agency's facilities. During fiscal year 1975-76, charges by the Recreation and Parks Department for these services totaled $27,161. For 1976-77, these costs are estimated to increase to more than $31,000.

PROGRAMS:

The Agency's program for 1977-78 includes the upgrading of 14 of the Agency's older unlandscaped facilities. It is estimated that the cost for upgrading these and 30 other unlandscaped facilities will require an expenditure of approximately $1,000,000. Additional landscaping of existing facilities that has been programmed for 1977-78 and future years will add an additional 20,000 square feet of landscaping to existing facilities. All new facilities will be fully landscapeed and decorative treatment of walls will also be included. (17)

The Department has taken several actions towards improving the environment of the City since 1970. Among them are the preparation of the Concept Los Angeles and the Citywide Plan which were adopted by the Council in 1974. During this period the several environmental elements of the General Plan were prepared and adopted as mandated by California state law. These included the Open Space and the Conservation Plans adopted in 1975. Most recently was the adoption of the Housing Plan on November 3, 1976. These in addition to the Service Systems and Transportation Elements of the General Plan and the 23 adopted Community Plan Elements form a framework and background for decisions affecting the environment of the City of Los Angeles.

It is the Department's goal to achieve final adoption of the remaining 12 Community Plans, Scenic Highways Plan and other Plan Elements as soon as possible so that each may be scheduled for review and revision on a five year basis. Of course under present state law the Housing Element must be revised biennially. With the advent of "Growth Management", an annual Housing and Community Development Application, "208" Areawide Waste Treatment Management Planning, Los Angeles County Transportation Planning Commission, SCAG "Regional" Planning Agency, State of California Housing Plan and Transportation Plan, State of California Housing Finance Agency, the State of California Coastal Plan, the South Coast Air Quality Management District, the Santa Monica Mountain Study Commission and not least of all the Energy Crises, it is critical that effective and up to date plans and plan elements for the City of Los Angeles are available.

In response to the needs generated by the California Environmental Quality Act and the Friends of Mammoth Decision, which necessitated the inclusion of private projects into the environmental impact reporting process, the Planning Department compiled in 1975 an extensive environmental impact reporting manual for private projects which deals with base material and detailed instructions for the compilation of these very complex reports.

Through the preparation of environmental impact reports on projects that may have a significant impact, the Department is able to offer constructive alternatives to the proposed projects that have reduced the overall impact on the environment.

Also under development is an environmental data base containing a wide variety of environmental characteristics on a census tract basis. Typical of the data contained in this system are:

- noise levels for freeways and airports,
- brush fire hazard areas,
- ecologically important areas,
- flood and erosion hazard areas and earthquake fault areas.

AESTHETICS:

Open space has been increased through improved land use restrictions and public acquisition from recreation funds received under the auspices of the Quimby Bill.

The Mulholland Scenic Parkway and the Valley Circle reports have been prepared and when adopted by the City Council will apply more visual controls to these specific areas. Further, the proposed Scenic Highways Plan has been completed and is now under public review.

Oil drilling regulations have been tightened by requiring drill sites to be returned to their natural condition after production is completed.

LAND USE:

Housing densities have been reduced through more restrictive land use controls such as the plan designation which allows a maximum of one dwelling unit per acre. In addition, this minimum density allowance is further reduced in certain portions of the Santa Monica Mountains by the application of a slope density formula. This formula reduces allowable density according to the steepness of slope, from one dwelling unit per acre at 15% slope to a minimum allowance of .05 dwelling unit at 50% slope. This should result in the preservation of open space and the natural character of hillside areas through reduction of grading.

Highway designations in Community Plans have been reduced in number with resulting reductions in traffic capacity and air and noise pollution on abutting residential and commercial developments.

In accordance with the General Plan, the Department prepares specific plans for key urban "centers". These Specific Plans will encourage further development in limited areas in order to preserve single-family neighborhoods. Specific plans can serve as a useful tool to prevent spreading growth while providing an effective means to reduce the overall impacts of addtional development.

LEGAL ENVIRONMENTAL RULINGS:

The Woodland Hills Residents Association vs. City of Los Angeles ruling required consistency with an adopted General Plan when approving a request for subdivision development.

The Brentwood Community Federation vs. City of Los Angeles court case required subdivisions to be consistent with both Specific and General Plans with the finding to be made in writing.

NEW PROGRAMS:

In addition to the plans and programs mentioned the Department is preparing the following plans which are particularly helpful in developing the quality of the City's environment:

- Bikeway Systems Plan
- Recreation Plan
- Hiking and Equestrian Trails Plan
- Solar Rights Study

Environmentally-related data from various existing automated files has been centralized to form an Environmental Data Inventory containing a wide variety of environmental characteristics on a census tract and census block basis. Typical of the data contained in this system are: noise levels for freeways and airports, brush fire hazard areas, ecologically important areas, flood hazard areas, etc.

Another achievement that is currently in process is the development of a means for measuring the accumulative affects of municipal actions such as subdivision approvals, zone changes, etc. Currently, we are preparing a prototype report that will be available to the Commission at the time they have to make a decision that will graphically display the accumulation of actions in a certain geographical area. In this manner they will be able to recognize that the individual action they are taking is not the only one that is occurring in a geographical area, but rather perhaps one in a chain of events through time that is affecting the area one way or another. Measures of the environment which can now be monitored easily are:

Category	No. of Census Tracts
Earthquake Faults	60 (potentially active) 71 (active)
Freeway Traffic Noise	227 (impact more than 65 DBA)
Aircraft Noise	4 (80 db CNEL) 3 (70 db CNEL) 21 (65 db CNEL)
Ecologically Important Areas	12 (coastal habitat) 25 (animals and plants) 6 (major wildlife)
Brush Fire Hazards	78 (mountain fire district) 32 (fire buffer zones)
Erosion Hazard	54 (low to moderate) 96 (moderate) 35 (moderate to high) 43 (high) 63 (high to very high)

JOINT ENVIRONMENTAL PLANNING

The Planning Department is engaged with several other City and regional agencies in combined environmental planning. Most noticeable among these efforts are the following:

"208" Areawide Planning - Federal legislation requires regional plans for treatment of wastewater. To meet strict discharge standards, greater controls of air quality, transportation and land use choices will be required. The Department will evaluate various means to achieve improved water treatment.

Air Quality Maintenance Planning - The Air Quality Maintenance Section of the Clean Air Act (1970) requires planning to ensure that clean air standards are attained and then maintained. Transportation, population and land use changes may occur in order to meet federal standards. Planning will be reviewing various alternative approaches to maintaining local air quality.

Housing and Community Development Act - In an effort to improve the "urban" environment, the Department has been actively involved in proposing and reviewing various programs to upgrade local housing and the public services required for healthy neighborhoods under the new federal program started in 1974.

Coastal Zone Management Act - The State Coastline Preservation Plan has been extensively evaluated and numerous suggestions have been made for the efficient and reasonable application of standards to ensure adequate protection of coastal resources. Planning will play an active role in preparing plans and implementation measures to ensure proper regulation of future development.

Urban Mass Transit - The creation of a Transportation System Element to reduce traffic congestion and improve the flow of traffic is the basic goal of the Department's efforts under Federal guidelines. More detailed transit planning will help improve local air quality and can reduce urban sprawl by encouraging greater clustering of future development. Various proposals are being reviewed that would lead to a reduction in the growth of vehicle miles traveled in the region. Work is also underway on a Downtown People Mover System to help reduce Central City congestion.

Santa Monica Mountain Comprehensive Planning Act - Recent adoption by the State has created a regional commission to develop policies to preserve valuable mountain resources. Planning has been involved in review of the legislation and will be actively working with the new Commission to ensure coordinated actions in this environmentally sensitive area. (18)

AESTHETICS:

The Wire and Signal Division has removed 1,884,000 feet of overhead aerial wire and approximately 350 poles. Also approximately 5,000 feet of aerial wires and poles have been replaced with underground cable as part of most street widening projects. All new poles and cross arms installed have been of a light gray finish rather than the black creosote.

The Communications Division, instead of installing the usual 100 foot high microwave tower at the Hollywood Municipal Building, redesigned the proposed installation and installed a small mast on the building which has proven very satisfactory.

LAND USE:

The Franchise and Engineering Division was instrumental in obtaining authority and financing of the Mission Road Griffin Avenue Grade Separation Project which when completed will prevent delays to vehicle travel by train movements thereby reducing traffic congestion and atmosphere pollution.

NOISE:

An investigation is being made as to the policies and operating procedures of the Atchison, Topeka and Santa Fe Railway Company, Union Pacific Railroad and Southern Pacific Transportation Company regarding the sounding of warning devices at railroad crossings of public streets. Also the possibility of rescheduling train movements from late evening and night to day time is being investigated. (19)

Improving our environment is a basic obligation of a recreation and parks department. Long before the word ecology was popularized -- fully realizing how important its efforts would be in the future -- the Department was acquiring "eye-sore" areas and converting them into attractively landscaped recreation facilities.

Preservation areas for their sheer natural beauty has long been one of the major objectives of the Department. The proposed Griffith Park master plan envisions a large portion of the 4,063-acre acrea of tree-covered mountains and steep canyons remaining intact.

Wildlife conservation has always been a concern of the Department. This program is most clearly discernible at the Los Angeles Zoo, which has a long-range program of conservation and breeding of scarce species. The Department maintains a marine reserve at the Cabrillo Tide Pool, operates a bird sanctuary in the Vermont Avenue area of Griffith Park, and has made provisions for a wildlife sanctuary in the development of Harbor Regional Park.

Our Horticulture Division and plant nursery play an important role in the Department's environmental program. In addition to planting thousands of trees each year and maintaining the plant life already in existence, they have developed an experimental plant introduction program.

Ever alert to dangers to plant life, the Department has eliminated the use of DDT and other objectionable pesticides from its spray program and has inaugurated a program for spraying noxious weeds.

Recognizing that an appreciation of nature is especially important to City youngsters, we conduct several educational programs. Park Rangers offer nature lectures covering the broad range of physical ecology to more than 20,000 students each year.

Cabrillo Beach Marine Museum, with its displays of flora and fauna indigenous to the Southern California coast, along with its guided tours of the Tide Pool area, has become an adjunct to our educational system through lectures to school classes.

At the garden center in the Sepulveda Dam Recreation Area youngsters learn about plant life, its growth and development, and both the Los Angeles Zoo and Griffith Park Observatory offer guided tours and lectures for school classes so that youngsters may learn more about the environment in which they live and the world beyond it.

Many of the recreation centers throughout the City have organized ecology programs and directors are working with community organizations on projects ranging from recycling collections to beautifying vacant City lots and anti-litter campaigns.

LAND USE:

Accomplishments specifically related to the physical environment for the years since 1970 are as follows:

1971:
- Development of Harbor Regional Park from Bixby Slough to lake area with hiking trails, picnic areas and play areas.
- Three Vest Pocket Parks (Triangle, East Wilmington, Pico-Union) and
- Ramona Gardens strip park completed
- Wattles Japanese Garden reconstructed.

1973: ENERGY:

In keeping with the Mayor's citywide energy directives, the Department eliminated the unnecessary use of gasoline, electric lights, heating and air conditioning units at all recreational facilities. Other steps include the elimination or drastic reduction of lighting at sports fields from 9 pm to 5 am and rescheduling evening classes to daylight hours.

1973: LAND USE:

- Development of Hazard Park and some beach development and improvement.
- Development of Temescal Canyon Park.
- New 18-hole golf course in Sepulveda Dam Recreation Area; Enlargement of Hansen Dam Golf Course. This totals 1,265 acres of green belt in the Department's 14 courses.
- Mini-park in Watts area dedicated.

During 1973 the Department acquired 1,075 acres of park land from various sources -- 720 acres from purchases by the City at a cost of $972,000 and 355 acres as a result of the Quimby Bill. The major acquisition was 672 acre Bee Canyon Park, the second largest City-owned park in Los Angeles. Other park acquisitions during the year included Serrania Avenue park, 37 acres; Mulholland Nike Site, (San Vicente Mountain Park) 10 acres; Chatsworth South addition, 1.5 acres and Woodbine Park, 1.3 acres.

Another significant fact was the implementation of the Quimby Bill, yielding $4.1 million in revenues to the City and resulting in the dedication of another 438 acres of park land from private land development. To date this legislation has accrued to the City in the amounts shown on Table I Quimby Funds.

TABLE I

QUIMBY FUNDS

Council District	Total Funds Received	Total Funds Expended	Balance
1	41,264.59	6,200.99	
2	409,498.42	117,193.00	
3	462,286.33	57,386.93	
4	132,790.74	7,200.00	
5	980,214.11	140,127.05	
6	695,171.32	15,039.14	
7	278,550.18	23,565.74	
8			
9			
10	10,553.00	6,321.17	
11	360,223.64	66,439.66	
12	382,643.51	85,281.35	
13	160,160.68	23,845.43	
14	620.00	0	
15	193,727.33	85,492.67	
TOTALS	$4,107,703.85	$634,093.13	$3,473,610.72

Source: Extracted from Recreation and Parks report dated September 26, 1976 (No. 491-76), and approved by the Board of Recreation and Parks Commissioners on September 30, 1976. Data is current as of May 1, 1976. There have been additional expenditure and receipt of funds since this date which are not accounted for in this report.

1974:

BIOTA:

A Citywide reforestation program to replace older trees and shrubs resulted in more than 2,500 trees, shrubs flowers and annuals being planted. In addition the Horticulture Division played a major role in the tree planting program in the Limekiln section of Porter Ranch Park where hundreds of trees were planted, a water system installed and extensive weed and debris clearance effected.

1974:

LAND USE:

A 3.8 mile Bikeway was completed from Marina del Rey to El Segundo.

Agreement with Department of Water and Power to use 350 acres at Chatsworth Lake and 20 acres of the Northridge-Tarzana power transmission right-of-way for park purposes.

Two green belt parks under Water and Power transmission lines in the West San Fernando Valley were dedicated for limited recreation use. These projects were designed to beautify the otherwise unaesthetic property under power lines crisscrossing the San Fernando Valley.

New parks opened were East Wilmington, Ramona Gardens, Delano, Woodley, Porter Ridge, Temescal Canyon as well as the several vest pocket parks under transmission lines in the Valley. In the area of land acquisition, the Department acquired a ten acre piece of land for use as a park in the Stocker-La Brea area of the Baldwin Hills, a gift from the Gulf Oil Corporation. In addition a small park site on Jefferson Boulevard near Arlington Avenue, a gift from Great Western Savings and Loan Company, was dedicated.

1975:

LAND USE:

A 7-acre Victory-Vineland Park site and an 11-acre open space park on Beverly Glen Boulevard south of Mulholland were acquired through Quimby Funds. A 2-mile section of Brown's Creek Trail was opened and work on a 5.2 mile bikeway in the Sepulveda Basin was initiated. Donations of a children's garden park from Atlantic Richfield Company, and a park site on Cleland Avenue in Mount Washington Area from Great Western Savings and Loan were received by the City.

Because of the additional work force made possible by the Comprehensive Employment Training Act (CETA) 1975 was, perhaps, the most productive in recent years for the Parks Branch. Additional personnel were assigned to facilities and rehabilitation work crews were put into action to improve the maintenance and landscaping at facilities. Acres of brush were cleared in Griffith Park adjacent to homes to lessen fire danger. Horticulture crews completed refurbishment of some 55 facilities and grounds surrounding public buildings which are maintained by the Department.

CETA crews trimmed hundreds of trees or removed and planted them thoughout the Park system. Additionally, special roving crews were assigned to rehabilitate landscaping, and thousands of feet of brush were cleared along fence lines and thousands of cubic yards of debris were removed. (20)

The Bureau of Sanitation has a multi-faceted interest in combating pollution and the management of the environment. Its operations are on a tremendous scale: to collect and dispose of 1,250,000 tons of residential refuse annually, to collect, treat, and dispose of domestic and industrial wastewaters, accumulated at the rate of 360 million gallons per day. Parallel to this effort is a continuous program at disposal sites to evaluate and limit or prevent further environmental impacts. For solid waste this includes protection of underground waters at landfill sites; and for wastewaters proper diffusion from outfalls.

Pursuant to the requirements of the Federal Water Quality Amendments of 1972 (PL 92-500), the City has intensified its industrial wastes source control and quality surcharge activities. This is to protect the receiving waters where treated effluents are diffused; and to protect the wastewater quality to an extent such that its reclamation as a resource would remain possible. Important to the recreational life of Southern California is the monitoring of beaches and the waters of Santa Monica Bay to insure protection of all stated beneficial uses. (21)

Energy:

Gas Recycling - Hyperion Treatment Plant

Since 1950, digester gas has been used at the Hyperion Treatment Plant to provide power for the bulk of the required treatment operations. In the early 1960's provisions were also made to sell surplus gas to the Department of Water and Power's Scattergood Steam Plant. This digester gas, which is approximately 65% methane, is a by-product of the bacterial decomposition of the organic matter present in sewage sludge.

Landfill Gas Recycling:

Landfill gas is generated under similar environmental conditions. Anaerobic bacteria stabilize the organic materials, producing landfill gas which has a composition of approximately 50% methane and 50% carbon dioxide and has half the energy content of natural gas. (21)

In 1973, the Bureau installed the first deep well at the Sheldon-Arleta Site. The well was 85 feet deep as compared to the earlier 25 foot deep shallow wells, and as such was able to collect a much richer methane gas stream since it was not diluted with air. Based on the deep well results, the Bureau and the Department of Water and Power initiated a joint demonstration project in which electrical power was generated using the extracted landfill gas. The project utilized a 300 horsepower internal combustion engine to drive a 200 kilowatt generator, and has been in operation since April, 1974. This electricity has been supplied to the Department of Water and Power's 34.5 kilovolt distribution system. (22) It has demonstrated that landfill gas is a source of energy and should be utilized if economically feasible. Sufficient quantities of gas will exist for energy recovery purposes at the site for at least the next decade. It is estimated that 1,000 cubic feet per minute of methane can be extracted. (23) The gas will be used at the existing nearby Valley Steam Plant. This will involve construction of a gas compression station, approximately 10 additional 6-inch diameter, 100 foot deep gas wells (total number of deep wells to be 15), collector and mainline gas piping, and a 9,000 foot gas transportation line to the Department of Water and Power Valley Steam Plant. (24)

PROGRAMS:

At present, the most promising method of useful resource recovery from refuse is through the utilization of its heat value. This can be done either through direct combustion, biological gasification, or by utilization of the pyrolysis process in which refuse is converted to useful liquid and gaseous fuels. However, the direct combustion method with existing technology is not suitable here in the Los Angeles Basin due to the restrictive air regulations.

Prior to energy extraction by the pyrolysis process, it is necessary as a first step that the refuse be shredded to a suitable size for the process equipment. The Bureau of Sanitation purchased a 200 HP, 10-ton per hour Heil Shredder along with a magnetic separator. Construction of the present pilot refuse processing facility started in the Spring of 1975 and was completed in December 1975. The purpose of this facility is to gain operating experience with this type of equipment processing Los Angeles' refuse. This experience and knowledge will be most valuable in making a decision as to whether or not the City will construct a full scale resource recovery facility and in operation of the facility if it is built. (25)

The Bureau of Sanitation is continuing its efforts in the processing of solid wastes to recover resources and to produce feedstock for subsequent energy recovery systems. As demonstration pyrolytic processes are built and operated elsewhere in the United States, the City will evaluate them for their reliability of operation, required maintenance, costs, etc. (25)

PROBLEMS:

Since 1970 the Bureau had conducted a daily sampling study of household refuse to determine its various constituents. Results showed that waste newspaper constituted approximately 110,000 tons per year or 10% of the refuse collected.

There was considerable interest locally, and nationally, to develop methods of recovering this paper. Studies showed that with the variability in the price of waste newspaper ($6 to $17 per ton) and the relatively small amounts per household (about 7 pounds per week) the chance of collecting newspaper separately on an economically self sustaining basis was remote.

In mid 1973 market conditions changed. A shortage of fresh pulp needed to make newsprint developed and foreign demand increased, which forced the price of used newspaper to between $20 and $30 per ton. This higher price coupled with the potential of strong public participation made the City receptive to the proposal the Garden State Paper Company, Inc. of Pomona, California, made in October 1973, to buy recyclable newspaper from the City and process it for re-use. A six-month pilot project in three areas of the City for a separate newspaper collection program started on August 4, 1975 and concluded on January 30, 1976. It was realized that the cost for the study would exceed the value of the waste newspaper collected.

Results were disappointing. Public participation was never more than 10%, and declined to 2% by the last week. The overall average of participation was 5.2% for the six month period. As a result waste newspaper collection on a citywide basis was considered unfeasible. (25)

The Bureau of Standards has been seriously involved with environmental conditions well in excess of 25 years. Long before the County of Los Angeles became concerned with air pollution, the personnel of the Bureau of Standards were testing emissions from the stacks of the City owned incinerators and collecting test data on particulate emissions from industrial sources.

The bureau also tested samples of industrial waste and sewage to establish "normal" levels of certain materials and to monitor these items to provide surveillance for the Bureau of Sanitation on the sources of industrial wastes. Much of this work provided input into the early industrial waste ordinance and subsequently checked on these waste producers for violation of that ordinance. By 1970, the Bureau of Standards had entirely dropped its air testing programs of industrial sources due to the ascendency of the Los Angeles County Air Pollution Control District, but the Bureau has continued to monitor air quality relating to various City operations. The Bureau's role in industrial waste analysis had changed in only minor ways.

WASTES:

Prior to 1970 and before the new emphasis on pesticides and heavy metals, most of the industrial waste and sewage tests were relatively simple. Many of these were visual, e.g. settleable solids or colorimetric comparisons. The samples were not generally treated extensively as a part of sample preparation. Now, as witnessed by the increase of manhours per work unit, there is a great amount of preliminary sample preparation, and also an increase in the number of tests performed on each sample. This relates to the more sophisticated equipment which has been acquired, providing greater sensitivity of detection and a ready ability to detect a greater range of materials.

The following is a year-by-year review of manhours utilized in environmental testing and the number of samples which were tested.

Year	Man Hours	Work Units
1970-71	5,786	3045
1971-72	9,150	4486
1972-73	8,872	7201
1973-74	12,007	4440
1974-75	13,724	5534
1975-76	15,703	6649

PROGRAMS:

Since 1970, the Bureau of Standards has acquired the following equipment for environmental testing.

Ph meters	2 - Atomic Absorption Spectrophotometers
Specific Ion Electrodes	Infra red Spectro-photometer
Analytic Balances	Sound pick up and re-cording equipment
B.O.D. Cabinet	Octave band analyzer
Air Leak Test Plugs	Wang Computer with interfaces to sound equipment
2 - Gas Chromatographs	Combustible Gas Measuring Equipment
Hydrocarbon Analyzer	Mass Spectrometer
Oxidant Analyzer	Stack Testing Equip-ment

And much equipment to enable setting up batteries of test stands. This permits testing to be handled on a continuous production line basis.

The Bureau has been involved in numerous environmental studies dealing with various projects. It has sampled and analyzed sediments and soils from the bottom of the Los Angeles Harbor and Venice Canals. Performed noise tests and analysis of fire trucks, helicopters, computers, boats, playgrounds, home sites, miscellaneous equipment and numerous work locations.(27)

STREET LIGHTING

Street lighting is constantly in full view of the public. It is frequently taken for granted by many citizens, but to others is the subject of strong personal opinions. Those in favor of street lighting generally relate to increased feelings of community safety, personal safety, safety of property and family. Statistics appear to support these opinions. Opinions against street lighting are occasionally based on performance of specific street lighting installations such as glare (which can usually be corrected), but are usually based on concerns of economics, since in Los Angeles benefitting citizens pay directly for operation and maintenance of the street lighting system. Recent innovations have increased the subjectivity based on the color of new light sources.

There are approximately 160,000 electrolier street lights and approximately 20,000 utilitarian street lights existing in Los Angeles at this time. Electroliers are of steel or concrete, wired underground. Those constructed prior to the early 1940's use incandescent lamps; later installations are generally mercury vapor lamps.

CONSERVATION:

The Coastal Commission currently requires new street lights installed in areas regulated by the commission to be high pressure sodium vapor without regard to full extent of all engineering and social considerations which are involved. This lighting is highly energy efficient.

PROGRAM:

A recently authorized program of energy and cost conservation is expected to eliminate all or most incandescent lamps in the City within a few years. This would result in extensive use of the latest light sources for those applications that each lamp is considered best suited for. Greater involvement of affected citizens' input in the process of selecting from engineering alternatives available should result in the most acceptable as well as economical choice of facilities. (28)

STREET MAINTENANCE

AESTHETICS:

The Bureau of Street Maintenance maintained over 200 acres of landscaping, most of which are median islands in roadways, during the fiscal year ending June 30, 1976.

AIR:

The Bureau has made significant contributions to the improvement of air quality during the last few years by discontinuing the use of asphalt heater planers which emitted large amounts of hydrocarbons and substituting nonpolluting grinders as replacements, and by the installation of dust collection bag filters at both of the City-owned and operated asphalt-producing plants. The bag filter at Asphalt Plant No. 1 was operational in January of 1972 and the one at Asphalt Plant No. 2 was operational in February, 1975. This equipment collects dust much more efficiently than the previous method and has reduced dust emission significantly. Hydrocarbon fume collection equipment has also been installed at both asphalt plants, which prevents the escape of these fumes to the atmosphere.

BIOTA:

More than 1,700 trees were trimmed to protect utilities during the fiscal year 1975-76; more than 48,000 trees were trimmed because of excessive growth and to prevent property damage; and 2,142 trees were removed because they were dead or diseased. More than 14,000 calls were answered to perform emergency tree work, and almost 40,000 trees were sprayed in the City for insects or disease control.

All trees planted under City requirements for subdivisions, C.P.C.'s, "A" 11 Projects, etc., are maintained by the Street Tree Division for five years. Approximately 12,000 new trees were planted under this requirement.

The Division lets contracts for the trimming of the City's 48,000 Palm trees, and also lets contracts for planting new trees in new subdivisions, zone changes, lot splits, parcel maps, C.P.C.'s, etc. Contracts were let in 1975-76 for the planting of 1,313 trees.

To prevent roots from damaging curbs and sidewalks, the Division root trimmed (or pruned) 7,650 trees in the City. This is a preventive rather than a corrective program.

CONSERVATION:

Maintenance of streets includes crack sealing, asphalt patching, asphalt resurfacing and reconstruction, and trench replacing utilizing asphalt concrete and Portland Cement concrete. During the 1975-76 fiscal year, this Bureau mixed 591,833 tons of asphalt at its two asphalt plants and purchased 89,139 tons of asphalt from private vendors under contract to the City.

Slurry seal is a simple and relatively inexpensive process to renew the surface of streets and extend the life of streets, which do not have substantial structural failure, from three to seven years. This process improves the riding quality and aesthetics of street and eliminates minor surface defects. The Bureau currently has two slurry seal machines, which apply ten to fifteen million square feet per year, and has three new slurry seal machines on order.

SAFETY:

Weed Abatement Program:

The Bureau's Weed Abatement Program consists of the removal of dirt, rubbish, weeds, rank growths, obstructions, or any material dangerous or injurous to the health or welfare of the public from buildings, ground, sidewalks, and streets. Weeds are cleared from approximately 27,000 vacant parcels each year. Hillsides are cleared of brush and weeds as designated by the Department of Fire and consists of the removal or elimination of any weeds, vegetation, dead trees, dead branches, or any hazardous waste or refuse of any nature which, by reason of proximity to buildings or structures, would constitute a fire hazard or contribute to the spread of fire.

Street Use Inspection:

The Street Use Inspection Division enforces a wide variety of ordinances of the Los Angeles Municipal Code and the State of California Streets and Highway Code pertaining to safe use of City streets, sidewalks, and public ways, and performs routine inspection of streets and sidewalks to insure correction of defective conditions in the interest of public safety. It issues permits and inspects numerous activities under the Board of Public Works including, but not limited to, utility excavations and backfill, housemoving, rubbish collection and disposal, street decorations, street closures, courtesy bus benches, building materials and equipment storage in the streets, housemoving and truck overloads, newsstand and newsrack placement in sidewalk areas, sidewalk sales, and corrections to hazardous private streets.

The Bureau performs work on a 24-hour basis if necessary, to relieve hazardous conditions in City streets for the safety of the public.

WASTES:

Street cleaning includes alley cleaning, slide and sloughage removal, storm cleanup, canal cleaning, machine sweeping, spot cleaning, cleaning structures, street flushing and emptying of trash receptacles. During the 1975-76 fiscal year, 803,575 curb miles were machine swept, collecting 361,415 cubic yards of debris; 110,000 cubic yards of debris were collected by spot cleaning crews; and 13,000 cubic yards of debris were collected following storms. (29)

A major part of the Traffic Department effort is the interconnection of traffic signals throughout the City so that they can most effectively operate within coordinated systems. This is a costly, long-range endeavor and at this time 2,600 traffic signal controlled intersections are interconnected out of the 3,400 within the City. It is calculated that 700 more should be interconnected. The 6,000 mile street system of Los Angeles City functions basically as a grid or network. The eight million daily trips on that system (exclusive of freeways) require passage through 40,000 intersections. The conflicts created by such movement must be continuously controlled in order for movement to occur at all. The traffic control system of signs, markings and signals accomplish this.

The key to freedom of movement and control over hazards within this complex is the traffic signal system. The effectiveness of its operation has a substantial bearing on vehicle emissions. Low operating speeds with many stops mean poor engine performance, more gasoline consumption and longer trip time. Good signal system timing raises operating speed to the optimum, improving engine performance. The Traffic Department, therefore, works constantly toward this goal. In traffic engineering terms, the benefit of improving signal systems is expressed as a "reduction in delay." This is translated easily to mean "better gasoline consumption: or "less air pollution." All are measured by operating speeds. An example is shown by the proposal to update the Coliseum Signal System, covering installations at 151 intersections. That reduction in vehicle delay, measured against the vehicle miles traveled on the streets in the Coliseum system, will equal 11,000,000 vehicle-minutes annually. The effect of such improved operating speeds is shown on Chart I, "Vehicle Gas Consumption."

Through the environmental review of major projects the Traffic Department has been able to more fully inform the Council concerning effect of many projects on traffic and circulation. Findings resulting from such review have in many cases allowed better design and less impact on traffic movement and safety. (See Chart I)

AESTHETICS:

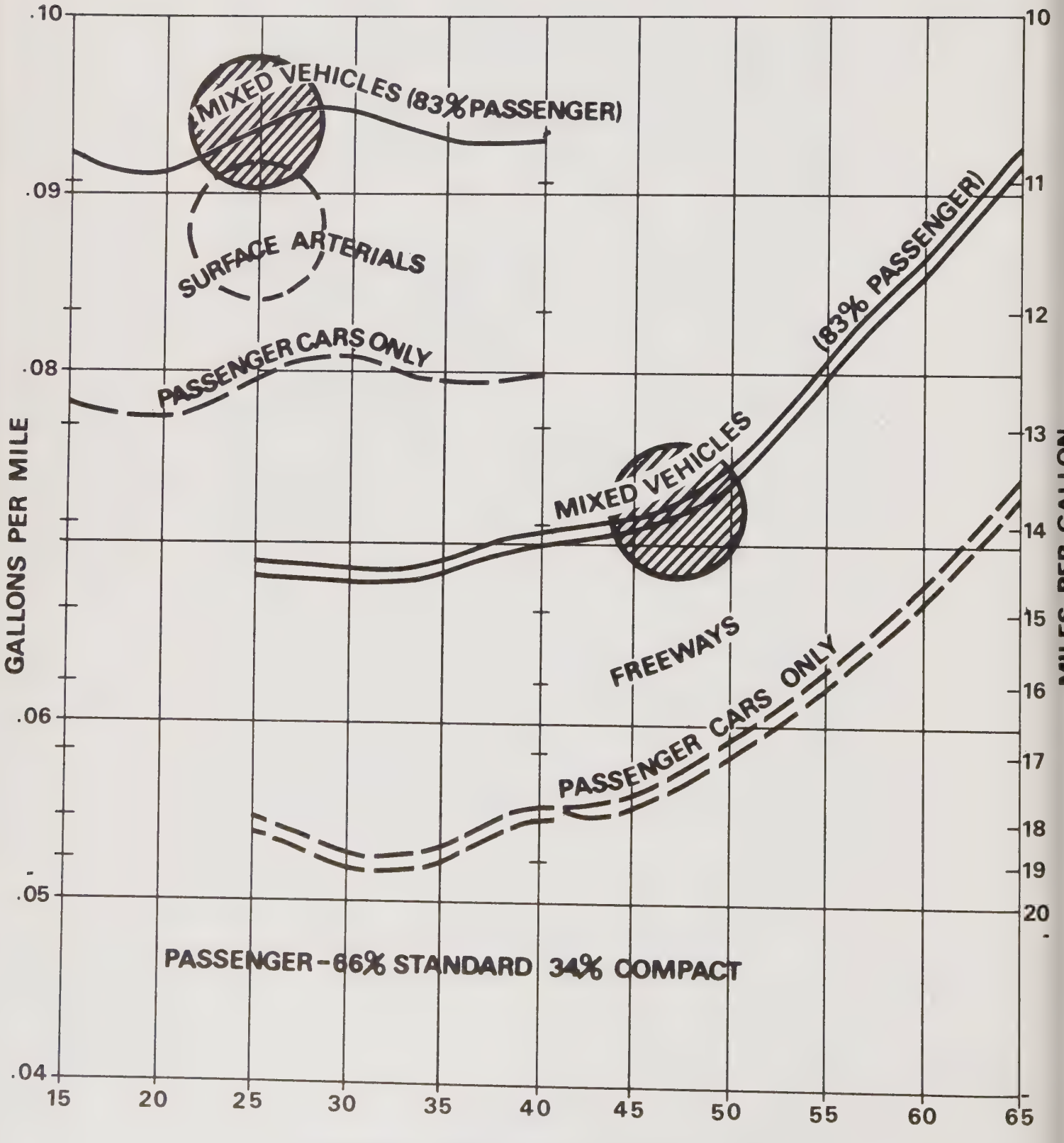
The Traffic Department has for many years worked with the Department of Building and Safety to control the installation of billboards near freeways. Under a far-sighted action by the City Council in the early 1950's, such billboards cannot be installed without approval of this Department as to effect upon drivers on the freeways, and approval by the Department of Building and Safety as to size, appearance and structure. The results are apparent. Few billboards are visible from freeways in the City. When many billboards are seen alongside a freeway, they are outside City of Los Angeles jurisdiction.

AIR: (also see Land Use)

City operations have been modified to control emissions to the atmosphere. The Traffic Department uses 115,000 gallons of traffic paint annually, for which specifications have been altered to minimize the effects of vapors. The Bureau of Street Maintenance has halted pavement burning and uses other methods for street resurfacing. City government is working in many such ways to improve air quality and benefit the environment.

CHART I

VEHICLE GAS CONSUMPTION



LAND USE:

Traffic Planning:

Controls over air quality in the automobile-oriented environment obviously require a system of streets and highways which will afford the optimum in expeditious movement of automobiles, trucks and buses while permitting concentrations of vehicles to locations zoned for designed land use. The type, design and location of highways as determined in the planning process is, therefore, of critical importance to environmental considerations. The planning process, however, considers many factors other than good service by the street system. Local concerns tend to overshadow area wide needs and some interests seek to inhibit growth by reducing or limiting the ability of the street system to function efficiently. Freeways have been deleted, highways have been removed from plans or reduced in capacity and proven needs have intentionally not been met. The need for highway capacity across the Santa Monica Mountains has reached critical proportions during peak hours, contributing heavily to air pollution and to other adverse environmental factors. Since 1963, travel on all routes across the Santa Monica Mountains has increased at an annual rate of 2.3 percent, equivalent to an annual growth of almost 12,000 additional daily vehicle trips. There are 673,000 vehicle trips on an average weekday.

Much discussion has centered on controls over automobile use, construction of fixed guideway systems and other alternatives to automobile use. As long as the public continues its overwhelming preference for purchase and use of automobiles, however, failure to provide adequately for their use will make correction of environmental defects more remote. The land use patterns of Southern California are now set and will not be changed significantly for many years. No currently available or proposed

alternative mode of transportation can effectively serve more than a fraction of the transportation needs generated by this established pattern.

SAFETY:

Vehicle Accidents:

Like it or not, vehicle related accidents form a highly visible part of our environment. They have a profound economic effect, shown in the direct cost of insurance and the indirect cost of business and government. There is also a direct impact on many individuals from their injuries, loss of property and the sights and sounds of emergency response. Effects of resulting traffic congestion, though temporary in each case, have a cumulative impact of substantial importance.

Automobile Safety:

This has been one of the bright spots of the last decade, however, with steady improvements in the rate of personal injuries and fatalities. Clearly, this could not have resulted from the effort of any one group or any single line of action. In this area, the biggest single contributor to the decline in total accidents is the freeway system, on which the accident rate is 1.74 per MVM (million vehicle miles) against 5.29 per MVM on surface streets (1973). Considering the total vehicle miles traveled on freeways versus surface streets (Chart III) it can be seen that the beneficial impact of freeways on total accidents is enormous. They are designed for safest possible operation, eliminating cross-traffic turning movements, pedestrians, bicycles and traffic signals. Their extreme popularity and limited number causes heavy vehicle concentrations, with the result that individual accidents are highly visible, often spectacular, and widely reported. The benefits become clouded by this image but are in fact a very important contribution.

Also contributing are the great advances in automobile design for safety, seat belts, better components, such as tires, better communications and direct participation by State and Federal agencies to correct specific problems. In the City of Los Angeles, there have been great improvements in street design standards and construction with sound engineering which gives consideration to safe operation. Street lighting has been greatly expanded. Traffic controls in Los Angeles have undergone drastic changes to improve safe operation. Many miles of streets have been striped to provide protected separate turn lanes. Traffic signals have been augmented by mast arms, larger and better placed signal indications, turning arrows and special controls. Locations with unusual concentrations of accidents are studied and treated. Large street name signs have been installed. Parking lots and driveways to major businesses are reviewed to control hazards. Special attention has been given to schools, with a traffic safety program worked out for every school in the City.

Bicycle and Motorcycle Safety:

The accident picture has worsened in the areas of bicycle and motorcycle use. Their proneness to injury combined with rapid rise in popularity caused a sharp increase of personal injuries in those categories. If such use continues to expand, more injuries and fatalities can be expected. The City has embarked on a program to combat this situation through development of special bicycle facilities, but the results must necessarily be long range.

PROGRAMS:

Computer Carpooling:

Commuter Computer has been a major attempt by government and private enterprise to foster carpool use. The Traffic Department and the Data Service Bureau have a substantial role in the program. Considering the total miles traveled, any significant improvement in the vehicle occupancy rate can have a highly beneficial impact on traffic movement, gasoline consumption and air quality.

PROBLEMS:

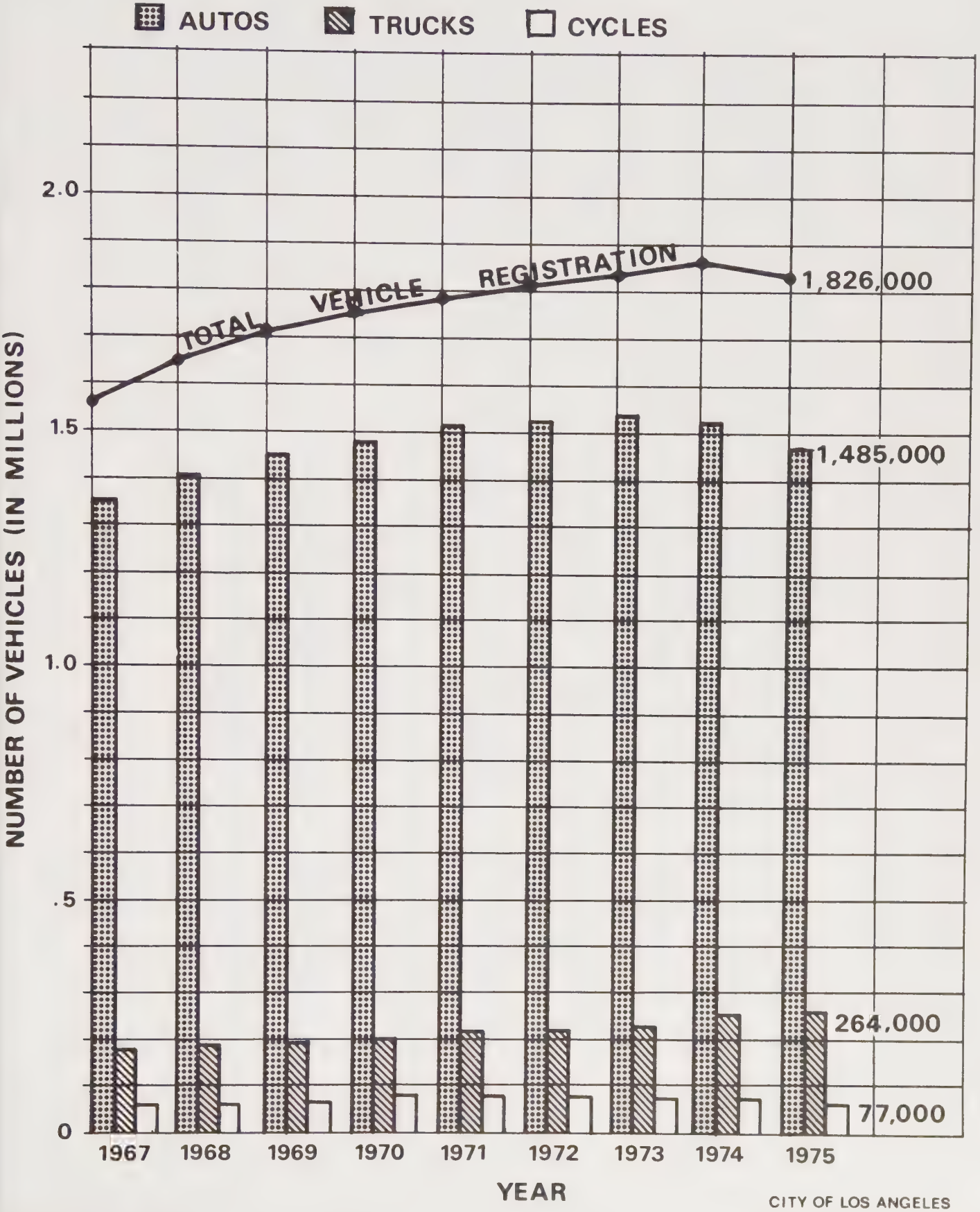
Vehicle Registration:

Attached is Chart II showing the total number of registrations within the City of Los Angeles over the period 1967 through 1975. It includes automobiles, trucks and motorcycles. Total registration peaked in 1974 and declined in 1975, although still higher than 1967. The figures for 1976 will be available early next year and will allow us to determine if this trend is continuing. Early information as published in the press indicates substantially increased registration in neighboring Ventura and Orange Counties and in the State as a whole.

There is a trend in which the number of registered automobiles reached a peak in 1973 and then began to decline while the number of trucks has steadily increased. This may represent increasing popularity of vans and small trucks for personal use. The significance of these figures relates to gasoline consumption. The truck increase indicated a higher amount of gasoline used for that purpose and may finally result in an overall increase in gasoline consumption per vehicle. The number of automobiles registered indicates a reduction of gasoline for their use.

CHART II

CITY OF LOS ANGELES
MOTOR VEHICLE REGISTRATION



EXCLUDES TRAILERS

CITY OF LOS ANGELES
DEPARTMENT OF TRAFFIC

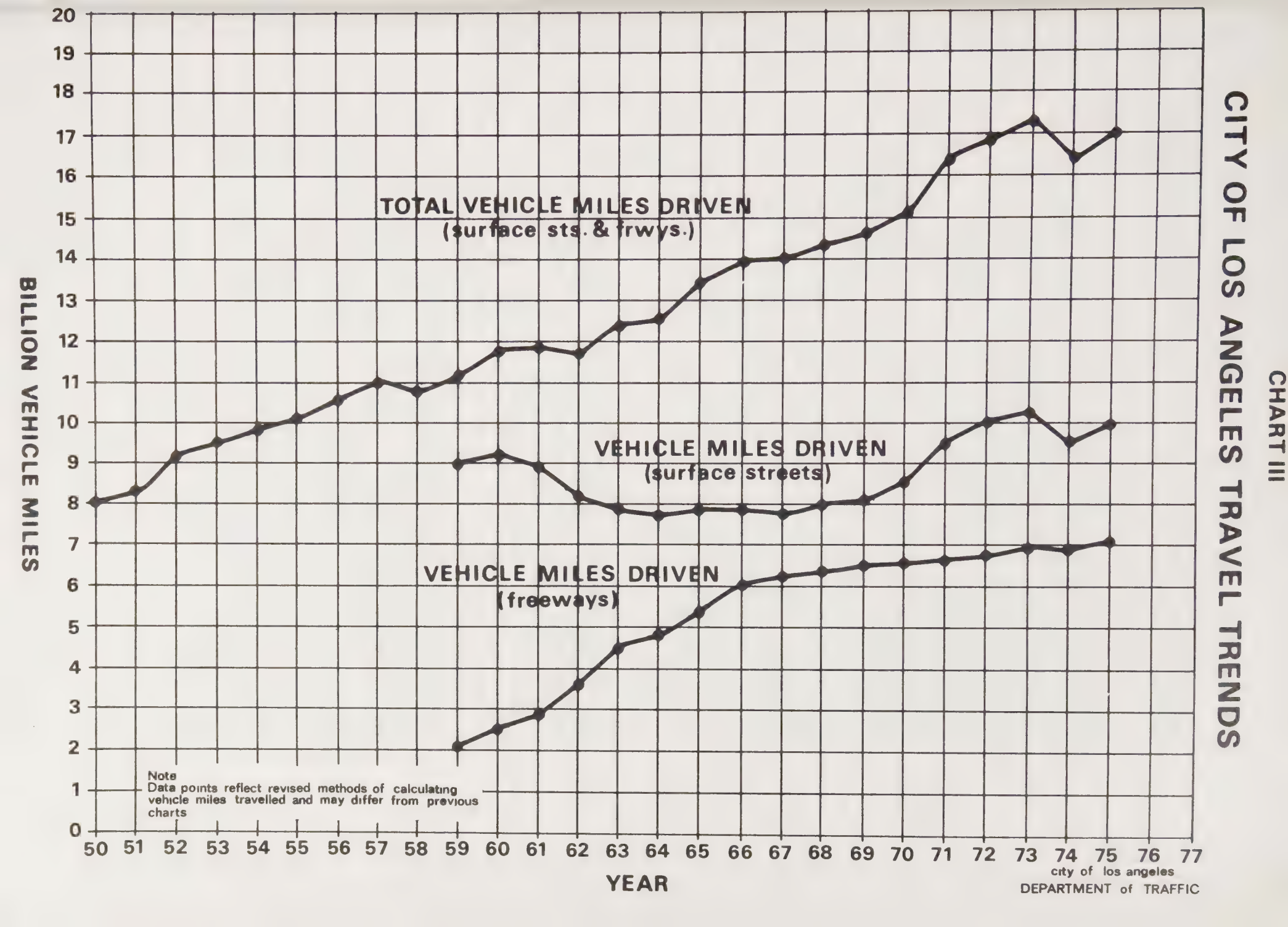
This situation could be explored further by a detailed analysis of the total amount and location of gasoline sold as shown through the records of the State Board of Equalization. The principal point at this time is that the total number of vehicles registered to residents of the City appears to have stabilized, in keeping with the trends in population. Continuance of the stable situation would indicate that environmental problems related to automobile and truck usage can be approached with a view toward correcting existing problems without effect by growth factors. In actual application, certain areas of the City will experience rapid growth, such as the West Valley, while others diminish in population.

Additional Vehicular Data

Travel Trends:

Also attached is Chart III Travel Trends within the City, showing vehicle miles traveled on surface streets and freeways. The gross data used for determining vehicle miles traveled is derived from several sources. It shows a constantly increasing trend of traffic on freeways for the entire period involved except for two factors. The first is a reduction in miles traveled during the gasoline shortage of 1974, with a reappearance of the trend when the shortage ended. The second trend of significance is related to the vehicle miles traveled on surface streets during the period after 1960, when impact of the post-war freeway system was first being felt.

There was a genuine and substantial shift of traffic away from major City streets and onto the freeways. This reduced operating problems on City streets, reduced the number of vehicle accidents, caused reduction of truck generated noise along arterials, and improved the air quality.


CITY OF LOS ANGELES TRAVEL TRENDS
CHART III
BILLION VEHICLE MILES
TOTAL VEHICLE MILES DRIVEN
(surface sts. & frwys.)
VEHICLE MILES DRIVEN
(surface streets)
VEHICLE MILES DRIVEN
(freeways)
Note
Data points reflect revised methods of calculating vehicle miles travelled and may differ from previous charts
YEAR
city of los angeles
DEPARTMENT of TRAFFIC

This air quality improvement resulted from the much better vehicle operation at freeway speeds and conditions. Because of better gasoline mileage (miles per gallon) by vehicles operating on the freeways, a significant benefit was the reduced consumption of gasoline for the same miles traveled. The total output of vehicle emissions, therefore, was reduced. This improvement substantially offset the effects of increases in population and vehicles in the same period.

It will be seen that in 1969 the trend increasing miles traveled on surface streets had returned. This related to the heavy concentration of traffic, lack of substantial additional capacity on the freeways and conscious decisions by the City and State not to continue freeway construction. In addition, the City Street System expanded, particularly in the areas of most pronounced growth. (See Chart III)

Vehicle Use:

The following table shows the ratio between persons and vehicles. This table related the vehicle registration to population. It shows a trend in which the density of vehicle ownership in the City in the years beginning with 1970 kept increasing until by 1973 there was one vehicle to every one and one-half persons. That ratio continued through 1975. The significance of that high level of vehicle ownership is shown by the (automobile) vehicle occupancy rate. This is the average number of persons occupying an automobile per trip. Samples show an average of 1.27 persons per vehicle on freeways, 1.28 in Westwood and 1.38 in Downtown Los Angeles. All are relatively low averages. The great majority of vehicle trips are made with only one person, i.e., the driver. Preliminary information analysis of trends in recent years, however, indicates a gradual increase in the number of passengers per vehicle. A notable increase in the number of vehicles registered to women indicates even greater vehicle ownership within the same population.

Year	Total Vehicles	Automobiles Only
1970	1.65	1.94
1971	1.58	1.88
1972	1.56	1.86
1973	1.51	1.81
1974	1.49	1.83
1975	1.50	1.85

Traffic engineers generally interpret the above type of information to mean that the citizens of this City and region are extremely dependent upon automobile transportation and that they rely upon it for almost all transportation purposes. It also means that the use of the automobile to this degree is the cumulative result of a vast number of individual decisions which reflect social, economic, convenience and other conditions in those individual lives. The trends, therefore, will not change unless those conditions change. Comparison with public transportation (basically buses) confirms this. Buses compared with automobiles during peak hours show better use than during other hours of the day but low use overall. The highest recorded use of buses is within the Central Business District where our most recent cordon count shows 25 percent of all persons entering the cordon area during the peak hour to be on buses. A similar count in Westwood shows nine percent using buses during the peak hour.

RECOMMENDATIONS:

The configuration of our metropolitan area with extensive, low density suburbs, mitigates against heavy use of mass transit. The use of automobiles is so ingrained to our people, so convenient, so comfortable, and so efficient for personal goals by comparison with other methods of transportation, that we do not foresee any substantial trend away from its use. The transportation features of the automobile allow freedom of movement to the individual to go from any point to any point, to plan his day to day activities without the restrictions imposed by other modes of travel and to save so much time carrying out

those activities that no other transportation mode can readily compete. While the efforts to increase bus usage and increase vehicle occupancy must not be impaired, the goal of improving air pollution relates primarily to automobile use, where it must be targeted on the quantity and quality of emissions. It is the automobile itself that should be the principal area for air pollution reductions.

The second area where improvement can be obtained is in the quality of traffic movement. A very high proportion of automobile-created air pollution results from vehicle operation due to poor driving conditions. The bad driving conditions are correctable through freeway improvement and new construction. Failing that, the City highway system should be developed to the highest standards. The traffic controls operated on that highway system must also be of the highest standards and it is in that area where the main Traffic Department effort is concentrated. (30)

AIR:

Prevention of air pollution is the main concern of the Bureau of Transportation in its efforts to improve the quality of the environment of the City. Efforts to alleviate or eliminate smog pollutants caused by automobiles and related equipment are centered on conducting test programs into the feasibility of providing alternate sources of fuel for motor vehicles.

A feasibility study was made on natural gas fuel systems for fleet motor vehicle use. The Bureau is presently operating under test, five light pickup trucks, all equipped with natural gas fuel systems. Exhaust emission tests conducted before and after installation by the California Air Resources Board have shown a significant reduction in smog-making pollutants. The study determined that compressed natural gas and liquid natural gas are not viable alternatives to gasoline. Two major constraints are confronted, 1) the Southern California Gas Company will not guarantee an ongoing supply of natural gas sufficient for the City's needs, and 2) the logistics and resultant costs are staggering, and cannot be cost justified.

To determine the feasibility of liquified petroleum gas as a fuel for motor vehicles, the Bureau had two L.P.G. fuel systems installed on City-owned trucks. Tests have been scheduled with the California Air Resources Board for the near future to document exhaust emissions. Information currently available on the pollutant emission tests which have been conducted by other agencies and private research laboratories indicates that L.P.G. is a very clean-burning fuel.

Again costs, logistics and supply have eliminated this fuel from consideration. Stringent safety requirements restrict where and how this fuel can be used. In its search for practical solutions for the mitigation of pollutants generated by motorized equipment, the Bureau has looked into the possibilities of utilizing the old methods of powering vehicles as well as the new innovations.

One area of inquiry is the use of external combustion engines (steam powered) as a prime mover for City vehicles and/or helicopters. The Bureau of Transportation has been in contact with four manufacturers or engineering consultants in the field of steam engines.

Another is the potential for the use of electrical energy as a source of power for motor vehicle use. The Bureau has conducted several inquiries with various manufacturers in this field. Based on the information available, the state of the art of the use of electrical power for motor vehicles for general application is not presently sufficiently advanced, economically or practically, to warrant further investigation at this time. The Bureau continues to monitor the current state of the art on all new automotive innovations.

A test program for the evaluation of various diesel fuel and lube oil additives and their effect on pollutant emissions and the life of the engine components is ongoing. Final arrangements are being made with an independent research laboratory to test a product called "Anpol" in five City-owned vehicles under laboratory operating conditions. We are testing miscellaneous fuel additives for treating gasoline to reduce pollutant emissions. To date, none of the lube oil and fuel additives tested have proved to be cost effective or sufficiently emission reducing.

The Bureau had prepared specifications for the purchase, testing and evaluation of a surface heater offering a new concept of radiant heat in reducing smoke emissions caused by heating and scraping pavement in the process of street maintenance. However, all surface heaters are now illegal and the City has gone to road planers to remove asphalt. One large road planer was purchased in the 1975-76 Budget and one mini is being purchased in the 1976-77 Budget.

PROGRAMS:

We have assembled two safety and emissions inspection vehicles to regularly inspect each of internal combustion engines in the fleet. They are equipped with the latest available instrumentation to measure hydrocarbon and carbon monoxide emissions, to measure diesel engine exhaust capacity, to monitor the noise level both inside and outside the cab, to check engine performance and circuitry and to inspect all safety devices. This mobile safety and emissions inspection laboratory enables this Bureau to provide better and more timely services to the user departments and bureaus, and reduce equipment downtime by performing the necessary tests at the user's vehicle parking locations. Some minor adjustments are made on site. Major corrections are referred to the shops. It is the position of this Bureau that a well-tuned vehicle is more economical to operate and significantly better for the environment. (31)

AESTHETICS:

Electric Utility Undergrounding

The two general types of electric utility lines are the relatively high voltage transmission lines which bring power from generating sources, and the lower voltage distribution lines which provide the electricity directly to the customer.

The present level of technology for undergrounding high voltage, large power carrying capability transmission circuits entails considerably higher costs than for undergrounding lower voltage distribution circuits. Throughout the world this has restrained the undergrounding of transmission lines except in congested areas where overhead lines are not practical. Despite this, the Department of Water and Power (DWP) has pioneered the field of underground transmission by using the highest voltage for which reliable underground transmission cable could be obtained and has utilized new cost reduction features as soon as they become practicable. DWP has installed approximately 11 miles of underground transmission cable in the last five years at a cost of approximately $9 million.

DWP, during the last five years, has continued its program of underground distribution power lines.

The underground distribution program, in addition to new circuits which are placed underground for technical reasons, includes new circuits which could more economically be placed overhead but which are installed underground for aesthetic reasons. Within new commercial and residential subdivisions, all power lines are placed underground as required by the Los Angeles Municipal Code. The program also includes the conversion of overhead facilities to underground implemented through the creation of Underground Utility Districts as provided by Ordinance No. 145,148 enacted October 12, 1973, and in addition, through DWP's expanded underground conversion program.

The conversion program consists of projects nearly equally divided between beautification projects (the removal of pole lines from already fully improved major thoroughfares) and street improvement projects

(the removal of pole lines in conjunction with planned street improvement projects along major thoroughfares). In total, more than 220 conversion projects have been initiated since the inception of the program in 1964 with the majority of them being accomplished during the past five years.

Funds required to provide for this aggressive underground distribution program have risen from $7.5 million in 1964 to $20 million in 1971, and to almost $24 million in 1976. It is anticipated that DWP's capital expenditure program for undergrounding will continue to increase over the next five years with even more emphasis placed on the conversion program of replacing overhead facilities with underground.

DWP's program, in support of environmental quality, for the change from overhead distribution lines to underground has been well received by the citizens of the City of Los Angeles, and has resulted in the removal of 54.4 miles of overhead pole lines in the last five years.

DWP is participating with the Electric Power Research Institute, along with other utilities, to develop materials and techniques necessary to continue progress in the undergrounding of power lines.

AIR:

Out-of-State Power Generation:

Since 1968, the Department has been operating its Power System under purchase agreements which contribute low cost, clean hydroelectric energy, generated outside the State of California. The first such agreement was for the purchase of Canadian Entitlement energy and capacity imported to the Los Angeles Basin via the then newly constructed 500-kv a-c Pacific Northwest-Pacific Southwest Intertie.

During subsequent years, and with the development, construction, and the May 1970 commencement of operation of the 800-kv d-c Pacific Northwest-Pacific

Southwest Intertie, DWP was able to contract with many utilities in the Pacific Northwest for surplus hydro energy and capacity. These purchases enabled DWP to reduce its fossil fuel requirements and its need to provide the electrical capacity from plants built within the Basin.

From 1972 through 1976 five coal-fired steam units became available to DWP as one of the joint owners of both the Mohave and Navajo Generating Stations. Mohave Generating Station is located in Nevada while Navajo is in Arizona.

The result of all the planning, building, and participation in these projects is that in the five years from fiscal years ending 1972 through 1976, the burning of 48.1 million barrels of oil in the Basin generating stations was avoided by using power from these sources. This not only meant a substantial savings in scarce and high cost oil, but also resulted in a substantial contribution toward the improvement of air quality in the Basin.

Heat Rate:

DWP has traditionally been an industry leader in heat rate, which is a measure of the fuel needed to generate a kilowatt-hour of electricity. A lower heat rate not only saves scarce fuel and reduces fuel costs, but also contributes to improved air quality in the Los Angeles Basin.

In 1975, DWP heat rate, according to Electric Light and Power Magazine, was fourth best among the top 100 electric utilities in the nation. The DWP heat rate was 9,872 British thermal units per kilowatt-hour, while the national average was 10,467.

Operating at national average would have consumed an additional estimated one million barrels of oil at Basin generating stations for calendar year 1975.

NO_x Emission Reduction Activities:

In the last five years, the Department has continued efforts in reducing and controlling NO_x emissions from its steam-electric generating stations. These efforts have resulted in NO_x emission reductions of approximately 30 and 50 percent from fuel oil and natural gas operations respectively. (Due to differences in the nature of the combustion process, NO_x emissions from fuel oil use are more difficult to reduce.) These reductions have been accomplished by modifying the combustion process through the use of low excess air, off-stoichiometric combustion, and staged combustion with overfire air ports. Incorporation of current NO_x reduction technology into the design of DWP's newest unit, Scattergood Generating Station, Unit 3, resulted in an 85 percent reduction of NO_x emissions. Cost associated has been approximately $2.3 million.

Currently, technology to further reduce NO_x emissions as well as emissions of sulfur oxides and particulate matter is being reviewed.

Automotive Fleet Practices:

Since 1973, automobiles purchased by the Department have been four or six-cylinder, compact or subcompact models. This has resulted in a savings in fuel resources and reductions in emissions. Automotive fuel dispensing facilities have been modified to comply with current fuel vapor recovery regulations.

BIOTA:

Thermal Effect Studies:

In 1971 and 1972, DWP conducted Thermal Effect Studies costing $300,000 for Harbor, Haynes, and Scattergood Generating Stations. The environmental objectives of these studies were to determine the dispersal areas of the thermal discharges, assess the seasonal variations of the disposal areas, and examine the areas for the effects of the thermal

discharges and other waste effluents on the indigenous fish populations. The studies showed that beneficial uses of the receiving waters and areas of special biological significance in the area of the stations are being protected. The final report for the Harbor Generating Station Thermal Effect Study further concluded that the discharge seemed to have a beneficial effect on the local harbor bottom community in that the biomass and diversity of life at the discharge area exceeded that elsewhere in the harbor.

Velocity Cap Installation:

On October 9, 1974, DWP installed a new velocity cap over the intake structure at Scattergood Generating Station at a cost of $300,000. The design of the velocity cap incorporated data gathered from the Southern California Edison Company studies at Redondo Beach Generating Station and DWP's previous experience with velocity caps. Since the new velocity cap was installed, a reduction of 58 percent in fish entrainment has been experienced at Scattergood Generating Station, as compared to when no cap was in place.

Marine Life Entrainment and Monitoring Program:

Commencing in August 1975, DWP instituted a one-year Marine Life Entrainment and Monitoring Program at Scattergood Generating Station at an estimated cost of $16,000. The program consisted of the daily separation and weighing of all aquatic biota removed from the intake waters, in addition to performing a comprehensive program of separating and weighing all marine organisms removed due to heat treatment operations. The purpose of the program is to determine the impact that the Scattergood Generating Station circulating cooling water intake structure has upon fish population in Santa Monica Bay. The data currently being reviewed indicates that entrainment of marine biota in the circulating cooling water has no significant impact on fish population in Santa Monica Bay.

DWP is performing continuous temperature monitoring of the intake and discharge of once-through condenser cooling waters at its coastal stations, as well as sampling of waste streams at all generating stations. Estimated expenditures for this work are $50,000 annually. (32)

CONSERVATION:

Conservation of Water:

Increasing demands on the State's limited water supply have created an awareness of the need for efficient use of water. DWP has encouraged customers to use water wisely for many years by metering all service connections. Metering directly apportions the cost of water service to the customer and thereby gives a financial incentive to conserve. Because the City has adequate water supplies, a financial incentive is probably the most effective means to encourage conservation over a long term.

A more active water conservation program has been recently initiated to increase conservation efforts. Public information brochures have been distributed to publicize the need for and benefit of water conservation. Residential customers are encouraged and shown how to reduce water use both inside and outside the home. Industrial and commercial users are also being asked to investigate potentials for saving in manufacturing processes, maintenance activities, and landscape irrigation.

The Department's current leak program results in system leakage considerably below the national average. However, additional efforts will be made to reduce leaks including the purchase of an electronic surveillance device. Water System personnel will be trained to operate this equipment to further locate and reduce leaks in our System.

A study is now in progress to investigate the potential water savings of applying an evaporation retardant in City reservoirs during the summer months. (33)

Conservation of Energy:

The advantages of conserving energy to the extent that this can be achieved without adverse impact on the City's economy or the well-being of its citizens are numerous. Conservation limits the unnecessary use of electricity which otherwise would consume our natural resources and possibly have an adverse impact on our environment. Conservation decreases the amount of low-sulfur fuel oil which must be imported from foreign sources at high costs. Conservation can also help defer the need to construct facilities needed to meet higher peak demands.

The City's experience during the 1973-74 Arab Oil Embargo demonstrated the value of voluntary conservation reinforced by certain mandatory curtailment regulations which allow customers as much freedom as possible to choose the manner in which they wish to reduce and provide a mechanism for relief of hardship and other special cases.

At the same time, many areas of potential conservation, such as attic insulation and minimum energy efficiency standards for both buildings and appliances can best be effected with enforced regulation. Many of these key areas of potential savings are the subject of proposed legislation and regulations on which the State Energy Resources Conservation and Development Commission is planning to act.

Increases in electricity rates and evolving changes in rate structure are providing substantial incentives for customers to conserve energy. Consumer education and information programs provide customers with the methods and advantages of conservation. The impending natural gas curtailment in California may affect DWP, as some customers will convert gas-fueled operations to electrically powered operations. Through surveys of potentially affected customers, DWP is continuing to study possible effects of this issue.

ENERGY:

Scattergood Generating Station:

Scattergood Generating Station, Unit 3, (SGS3) currently operates only with natural gas as fuel. SGS3 is the newest, and one of the most efficient units in the Power System. The Department of Water and Power has spent in excess of $4 million to equip SGS3 with the latest air pollution reduction devices, which has resulted in contributing less pollution per kilowatt-hour than any other unit in the Power System.

In 1975 the Southern California Gas Company, the only supplier of natural gas to the Los Angeles area, notified DWP that natural gas would no longer be available, on a firm basis, for boiler operation.

DWP is, therefore, planning to equip SGS3 to use fuel oil. Approval to do so has been received from the Southern California Air Pollution Control District and is currently under consideration by the Environmental Protection Agency and the South Coast Regional Zone Conservation Commission.

When SGS3 is equipped to fire oil, because of the newer plant's greater efficiency, DWP will save 2,269,000 barrels of oil from being burned in the Los Angeles Basin for the years 1978 through 1985. This will result not only in saving scarce and high cost oil, but also will substantially contribute toward the improvement of air quality in the Basin.

San Joaquin Nuclear Project:

The Department of Water and Power is project manager for the proposed San Joaquin Nuclear Project (SJNP), a nuclear plant scheduled for commercial operation in the mid-1980's. The SJNP will be located 33 miles northwest of Bakersfield. It is anticipated the DWP will be joined in the project by the California Department of Water Resources, Pacific Gas and Electric, Southern California Edison, Northern California Power Association, and the Cities of Glendale, Pasadena, Anaheim, and Riverside.

Nuclear power will help to reduce dependence on fossil fuel consumption as power plant fuel and serve to replace existing older, fossil-fueled generating units due to their increased maintenance costs and decreasing reliability. In the time period 1985-1990, when the first SJNP units will be operational, DWP plans to retire four oil-fired generating units in the Los Angeles Basin with a total capacity of 533 MWe.

About 60 percent of DWP's existing generating capacity comes from generating facilities in the Basin that use oil. A reduction of this is desirable in order to save scarce and high cost oil and to reduce air pollution in the Basin. DWP's 35 percent share of the SJNP will save up to 20 million barrels of low-sulfur oil annually.

Despite recent efforts to reduce United States dependence on foreign oil, it is expected that during the next ten years, the United States will import increasing amounts of oil to meet its domestic needs. Because California electric utilities utilize foreign oil in their electrical generating facilities, the SJNP, when operational, will significantly help to reduce their dependence on foreign oil.

LAND USE:

Park and Other Uses of Tranmission Rights-of-Way:

The Department has encouraged certain secondary uses of the right-of-way occupied by its transmission system by providing creative landscaping, rest areas, and recreational facilities wherever possible.

One DWP program, in cooperation with the Departments of City Planning and Recreation and Parks of the City of Los Angeles and other governmental agencies, is the development of a network of parks on transmission corridors. This was formalized in 1968 by adoption of a Transmission Rights-of-Way Development Plan.

The Plan details 24 park sites and three beautification areas. To date, more than 12 of the parks have been developed. These parks contain grass areas with landscaping, shrubbery and, in some cases, sand play areas for children. Many of these also include bicycle trails and jogging paths.

Another program, which has been greatly expanded in recent years, is the providing of greenbelts on selected rights-of-way. These greenbelt areas are planted with grass and shrubbery and have automatic irrigation systems. No scheduled public activities are planned for these areas, but they do offer new picnic sites and natural outdoor play areas.

In view of the scarcity of agricultural sites within urban areas, DWP maintains a listing of suitable locations for nursery developments or other agricultural projects. DWP encourages the use of rights-of-way for these purposes compatible with its operating requirements. These areas, although not open to the general public, add areas of greenery to surrounding neighborhoods.

DWP has landscaped portions of its transmission line rights-of-way to make them more compatible with the surrounding residential or business areas. This program provides that street crossings are landscaped with grass, shrubbery and, in some cases, fenced.

Transmission line rights-of-way by nature can have a beneficial effect on a neighborhood by providing quiet zones and open spaces. Many times property owners adjacent to transmission lines object when proposals are made to develop the transmission line rights-of-way, even when these developments are for park or greenbelt areas.

When proper consideration is given to the secondary uses of transmission line rights-of-way, a positive impact can be added to both residential and business neighborhoods.

NOISE:

The Department considers and actively pursues methods for noise reduction in the construction and operation of its facilities and in the purchase of equipment.

Specifications for new construction equipment, including hand-held types, require that equipment must comply with the City of Los Angeles noise ordinances and that all trucks must comply with Federal noise ordinances.

Transformers used must comply with Federal and City noise ordinances. Transformers purchased at premimum prices by DWP by specifications produce noise levels 5 to 20 decibels below the National Electric Manufacturer's Association Standards in order to comply with local ordinances.

In addition to the installation of special equipment, noise from completed facilities may also be reduced by enclosures surrounding noise-producing equipment, landscaping, and attenuation due to distance from property lines, as required.

SAFETY:

In December 1971, the California Department of Water Resources, Division of Safety of Dams, requested a seismic stability analysis of 30 hydraulic-fill dams throughout the State of California. The analysis showed that five DWP dams would not meet new earthquake safety requirements. Silver Lake Dam has already been reconstructed and will be returned to service in December 1976. Plans for reconstruction of the remaining four dams are being studied at this time.

WASTES:

Waste Water Reclamation:

Water users currently return about one-half of their fresh water supply to the sewer after it is used once. The wastewater is collected by sewers,

delivered to a treatment plant to remove most of the waste material, and is then released to the ocean. The magnitude of this discharge from the City of Los Angeles is 360 million gallons per day.

If sufficient treatment is given to protect public health, reclaimed wastewater could be reused for certain industrial, recreation and irrigation purposes.

The City of Los Angeles has constructed a wastewater reclamation plant near Glendale and has plans for one to be built in the near future in the Sepulveda Basin. These plants were conceived both as water conservation systems and as less expensive alternatives to large interceptor sewers. The Department of Public Works and Department of Water and Power will continue to keep abreast of water reuse technology in order to develop a cost-effective water reclamation program for the City of Los Angeles.

Industrial Wastewater Systems:

The Department is presently proceeding with the design and construction of industrial wastewater treatment systems at Haynes, Scattergood, Harbor, and Valley Generating Stations. These systems will be used for treating wastewater resulting from in-plant processes. When the treatment systems are complete, the waste water discharger will comply with the Federal Water Pollution Control Act of 1972, as set forth by the guidelines of the Environmental Protection Agency and locally administered by the California Regional Water Quality Control Board, Los Angeles Region.

In order to meet the requirements of the National Pollution Discharge Elimination System permits issued by that Regional Board, DWP is planning to spend approximately $12.4 million over the next three years for engineering and construction of new piping for collection and transport of wastewaters, settling and holding basins for storing and treating of wastewater, chemical treatment plants, and sludge processing equipment.

Energy From Wastes:

On a small scale, yet significant because of its nature, is the utilization of "digester gas" at Scattergood Generating Station from the City's Hyperion Treatment Plant. During the five fiscal years ending 1972 through 1976, the use of digester gas obviated the need to burn 203,000 barrels of oil. This resulted not only in saving scarce and high cost oil, but also contributed toward the improvement of air quality in the Los Angeles Basin.

Sheldon-Arleta Methane Recovery Project:

The Sheldon-Arleta Methane Recovery Project is a proposed joint venture between the Department of Water and Power and the Department of Public Works. The project will recover methane gas (approximately 50 percent methane, 50 percent carbon dioxide, with a heating value of 500 Btu per cubic foot) produced from the decomposition of household refuse at the Department of Public Works' Sheldon-Arleta Sanitary Landfill located in Sun Valley. The gas will be used as a boiler fuel at the Valley Generating Station.

The basic components of the proposed facility include a deep-well gas recovery system, gas compressor and dehydrator equipment station, underground gas transmission pipeline approximately 1.8-miles long to deliver the gas to the generating station, and appurtenant electrical, control, and metering equipment. Total cost for the project is estimated at $1.8 million. The facility is planned for operation in mid-1978.

The project will conserve approximately 82,000 barrels of oil annually through the productive uses of landfill gas, minimize potential of groundwater contamination by landfill gases, and result in increased odor control efficiency and the elimination of release of hydrocarbons, a smog ingredient, to the atmosphere.

Alameda Generating Station:

The Department of Water and Power is planning to design, construct, and operate a 60-megawatt waste heat recovery power plant in the Wilmington area of Los Angeles. This plant, designated Alameda Generating Station, will generate electricity by utilizing heat energy from the high temperature waste gases of the Great Lakes Carbon Corporation petroleum coke processing plant. The heat from these waste gases is now either dissipated to the atmosphere or cooled using an evaporative water spray process. The $32 million project will include a power plant, a transmission line, and additions to an existing DWP receiving station.

The energy generated by using the waste heat will be used to displace an equivalent amount of energy from Los Angeles Basin fossil-fuel generating plants. The project is expected to conserve 560,000 barrels of oil per year. The effect of using the lower cost waste heat energy will result in saving scarce and high cost oil and contribute toward the improvement of air quality in the Basin.

An application has been submitted to, and is being evaluated by, the California Energy Resources Conservation and Development Commission. If this project receives all necessary approvals by March 1977, as expected, the plant will be in operation by May 1980.

WATER:

City Water Supply:

Los Angeles' growing population, business, and industry have been assured of an adequate supply of pure fresh water for over 60 years. The eastern slopes of the Sierra Nevada provide 80 percent of the supply through City-owned aqueducts completed in 1913 and 1970. An additional 17 percent comes from underground wells tapping the Los Angeles River watershed. The City's entitlement to supplies furnished by the Metropolitan Water District of

Southern California (MWD) provides the balance of current needs and will supply future increases in demand. MWD distributes a blend of water from the Colorado River and from the State Water Project's Northern California sources.

Clean Drinking Water Act Compliance:

Water furnished by the Department of Water and Power is of high quality. However, it does not consistently meet the allowable turbidity standards in Federal and State water quality regulations which will become effective June 24, 1977. The new Federal standards were introduced by the Safe Drinking Water Act (Public Law 93-523), and are much more stringent than the 1962 standards.

In response to the new water quality standards, DWP initiated a Water Quality Improvement Program to reevaluate present water treatment processes, develop new water quality objectives, and to prepare plans to reach these goals. The statement of objectives was completed in January 1977 and the facilities to meet the objectives are scheduled to be constructed and placed in service by 1982.

Groundwater Use In Los Angeles:

Protection of Los Angeles' groundwater is a matter of great importance in the Los Angeles area. Groundwater basins provide a significant portion of the City's total water supply and serve as large underground reservoirs in storing local rainfall and, at times, imported water.

As of August 1, 1975, Los Angeles' available groundwater supply from the San Fernando Valley area increased by approximately 40 percent due to the State Supreme Court's decision on 20-year water litigation for this area. Also, as a result of this decision, Los Angeles will have greater flexibility in using the San Fernando Basin in conjunction with the operation of its other water supplies. Los Angeles is currently discussing with the State and local agencies within the San Fernando Valley the possibility of using the San Fernando Basin as a storage facility of the State Water Project.

PROGRAMS: ENERGY:

Energy Conservation:

After a series of public meetings which the Board of Water and Power Commissioners held to obtain public input on the Department's energy conservation activities, a resolution was adopted in February 1976 establishing a greatly intensified conservation program, doubling energy conservation efforts over the next five years at a total cost of approximately $5 million.

Without a strong conservation program, the Power System's compound growth rates for the past ten years of 3.9 percent for energy and 4.6 percent for peak demands might continue. While much of the increase was attributable to the continuing growth in the number of new housing units in the City, general business growth and the improved economy, a substantial portion of the increased energy use was attributable to increased electric use per capita by residents and an increase in electrical intensity in the business sector resulting from greater use of lighting, air conditioning, and labor-saving devices.

The forecast for future growth is the subject of much study by DWP, the California Public Utilities Commission, and the State Energy Resources Conservation and Development Commission, although estimates of the magnitude of growth vary. With conservation, DWP presently projects ten-year compound growth rates of 3.7 percent for energy and 4.2 percent for peak demands.

Future Out-of-State Generation:

The Department is currently participating in two proposed future out-of-state electric generating projects which would provide generating capacity to meet future electrical demands. These projects, if constructed, will also displace some of the older and less efficient fossil-fueled generating facilities in the Los Angeles Basin.

One is the Warner Valley Power Project, a 500-megawatt coal-fired generating station located in Utah, approximately 390 miles from the City of Los Angeles. The station will consist of two 250-megawatt generating units which are scheduled for commercial operation in the mid-1980's. DWP is participating with two other utilities in the project and will have 50 percent share in the costs and benefits of the project.

The other is the Intermountain Power Project, a 3,000-megawatt coal-fired generating station also located in Utah, approximately 600 miles from Los Angeles. This station will consist of four 750-megawatt generating units and is scheduled for operation in the late 1980's. DWP is participating with several other utilities and will have a 50 percent share in the ownership of this planned power project.

Research Funding:

The Department has sought to coordinate and jointly fund the greatest portion of its outside research and development efforts through participation in national and regional research organizations. This allows for maximizing the availability of research funds for individual projects and allowing for use of research facilities and experience not available within DWP.

Typical of such organizations which are supported and funded by DWP and their activities influenced through employee representation on their various advisory boards, committees, and task forces is the Electric Power Research Institute (EPRI).

EPRI was formed in 1973, began operations in 1974, and is currently supported by over 500 publicly, privately, and cooperatively owned electric power utilities. Its assigned mission is to conduct a broad, coordinated program of research and development with the aim of meeting the following major challenges being faced by the industry:

- Development of future energy supplies.
- Environmental protection, public health, and safety.
- Conservation of capital resources.
- Reliable delivery of electricity at low cost to the consumer.

The EPRI budget for 1976 is $129 million, with a proposed five-year budget through 1980 amounting to over one billion dollars. DWP allocates the largest percentage of its outside research funds to EPRI.

Other industry organizations involved in research and development activities which receive support and funding from DWP include:

- American Public Power Association
- Western Energy Supply and Transmission Associates
- Breeder Reactor Corporation

The research activities of each of these organizations include sizable expenditures for projects involving pollution control and environmental protection.

In addition, since January 1, 1975, a surcharge of 0.1 mills per kilowatt-hour was added to the cost of electric energy sold in the State of California. This surcharge is levied to finance the activities of the California Energy Resources Conservation and Development Commission. A portion of the funds thus collected, approximately 35 percent, is used to finance the Commission's research and development efforts. Their primary areas of research and development activity are in the fields of solar energy, geothermal energy, energy storage, and end-use conservation.

The total expenditure for outside research by DWP's Power System in fiscal year 1975-76, exclusive of surcharge funds provided to the State, was $2.2 million. This amount represents a marked increase from the 1972-73 expenditure of $117,000. The Power System plans additional increases in the annual expenditure for outside research and development in future years.

Research Into New Methods of Power Generation:

Due to anticipated natural gas curtailment, the Department of Water and Power's first priority for landfill gas development is piping landfill gas to nearby DWP generating stations for boiler ignition and warm-up. Two pipeline projects, in addition to the Sheldon-Arleta Methane Recovery Project, are being considered; one to connect private landfills in San Fernando Valley to Valley Generating Station, and a second to connect private landfills in Wilmington to Harbor Generating Station.

Those landfills too far from a generating station to make a pipeline economical will be developed from an on-site generation module, if feasible. The landfill gas would fuel a small gas turbine or gas engine-powered generator with the resulting electrical power output being connected to the nearby DWP subtransmission grid.

Additional waste heat projects similar to the Alameda Steam Plant Project are anticipated. The publicity from the project has resulted in another interested industrial company contacting DWP. Other companies with waste heat will be identified through the cooperation of city and county agencies or possibly identified from satellite infrared pictures.

DWP is considering a partnership with San Diego Gas & Electric Company in a 50 megawatt geothermal test facility at Heber, California. DWP would gain design, test, and operating experience which would be applicable to DWP's potential geothermal resources in Long Valley, California. The test facility would also determine the best way to dispose of geothermal wastes in an environmentally acceptable manner.

DWP, together with Southern California Edison Company and the State of California Energy Resources Conservation and Development Commission, submitted a successful proposal to the Energy Resources and Development Administration to build a ten megawatt solar-thermal generating plant at Edison's Coolwater site near Daggett, California. Construction is scheduled to begin in Mid 1978.

A joint Bureau of Sanitation-DWP Task Force is studying resources recovery and refuse-derived fuels. A pilot processing facility has been built in Sun Valley, and the Bureau of Sanitation is currently shredding and studying the composition and properties of Los Angeles refuse. Future plans call for construction of a magnetic separator in 1977 and an air classifier in 1978. This research may lead to a refuse processing facility in Los Angeles with DWP utilizing the gas or oil fuel produced for electric generation.

DWP has investigated electric generation by wind power . Due to the high average wind required by current wind generators, no potential sites have been identified nearby. (32)

PROGRAMS: WATER CONSERVATION

Public Information Program:

On April 15, 1976, the Board of Water and Power Commissioners reaffirmed its commitment to the conservation of water by adopting a water conservation policy that directs the Water System to expand and intensify its current public information program on water conservation to address all aspects of water use. The program should: (1) stimulate public interest in the efficient use of water, (2) describe the environmental costs of using water with particular emphasis on energy requirements, (3) provide information on water practices and devices and the corresponding benefits associated with water savings, and (4) promote cooperative programs with other organizations.

Bill inserts have recently been sent to our customers to stimulate interest in water savings and provide hints on how to reduce water use. The first communication in the Spring of 1976 stressed water use practices and the second in the Summer of 1976 discussed water and energy conservation for the hot weather season.

A new bill format is being prepared to provide conservation information to the customer. The bill will give the average daily consumption per billing period, in gallons, for the previous twelve statements. Residential customers will receive a two year consumption record because they are on a bimonthly billing cycle.

The Department's energy conservation book is being rewritten to include suggestions for homeowners on water conservation. A customer response page will be included to provide opportunities for individual assistance on water and energy conservation.

Department public speakers use the films "Water Follies", and "Drip". Twenty-two copies of "Water Follies" were donated to local schools. Three slide programs are being prepared for presentation to the public. A water and energy conservation slide show will be completed this fall. Slide shows on inside and outside residential water conservation will be prepared for use by a special panel of speakers. The Department is planning to purchase a mobile trailer to present conservation exhibits at shopping centers and other public forums.

Since the major thrust of the program is public information, a logo was established to create an identity for all materials prepared on water conservation. This logo was printed on buttons to be worn by Department employees and the public to encourage participation in the program. Plastic bags with the conservation logo were purchased to hold materials on water conservation at public meetings. A bumper sticker has been purchased from the Metropolitan Water District which notes the relationship between conservation of water and energy. The "Saving Water, Saves Energy", bumper sticker will be placed on all Department vehicles and will also be offered to Department employees on a voluntary basis.

Residential Use Study:

The potential for individual water savings by our customers is being investigated with a program involving 200 Department employees. The employee's homes are being retrofitted with toilet and shower devices to determine water savings by comparing use before and after the retrofit devices were installed. A secondary objective is to test acceptance levels of these devices by this motivated group. Total water savings for the entire City is difficult to predict, but it is desirable to report the potential for individual savings to customers. The retrofit kit also includes dye tablets to test for toilet tank leaks and printed material on inside and outside water practices that would result in additonal water savings.

Agricultural/Irrigation:

Residential landscaping and irrigation will be the primary emphasis of this part of the program. Reprints of articles from Sunset Magazine have been purchased that stress water conservation in residential irrigation. Experimental gardens of low water use plants are planned at local schools and available utility rights of way for viewing by the public. A simple procedure is being developed that will permit the homeowner to reduce the amount of water used for lawn irrigation. A container is placed in the watering area to measure the inches of water per normal watering duration. The plan calls for a systematic reduction in lawn watering until such time that there are signs of drying out or withering. The base irrigation rate may then be continued, with due consideration to weather.

Industry:

Large water users in industry who have accomplished significant water savings were interviewed to determine the potential for savings in selected industries. A program is now in the development stage which may include a pamphlet to stimulate industry's interest in investigating the potential for water savings, the loan of meters to assist in water use surveys, and a recognition program to inform the public about conservation efforts by industry. (33)

CHAPTER IV

PROGRESS TOWARD ENVIRONMENTAL IMPROVEMENT: EXTERNAL PUBLIC ACTIVITY

Participation in this report by the following public agencies, utilities and others external to the City government was solicited by the Department of Environmental Quality during the fall and winter of 1976-77. The Department recognizes that there are many other sources of environmental information within both the public and private sectors of this community that have not been tapped. As future reports are compiled, it is hoped that additional public agencies and private enterprises will wish to be included.

Information may be mailed to the Department of Environmental Quality, Room 550 City Hall East, Los Angeles, California, 90012.

One of the main programs established during the period of the environmental movement was that of public involvement. This was set up to find out the attitudes of the community in respect to flood control activities. During these meetings the purposes for the project and its design, involving aesthetics, landscaping and the type of channel proposed are discussed. Alternatives and mitigation measures to reduce environmental impacts as suggested by the public are considered. It is quite possible for a proposed project to be rejected on the basis of the community's attitude. It is the District's responsibility, however, to inform the public of the consequences if the flood control system is not constructed.

Environmental improvements have been made on 26 existing flood control facilities and five new facilities in the City of Los Angeles in the years from 1970 to 1976. A large number of these consist of fix-up or cosmetic projects for the design and aesthetic improvement of the old channels. This would consist of landscaping or screening of the old box channels at those points most visible to large numbers of the public, particularly at their intersections with major streets. Of the 31 projects, the City of Los Angeles has wholly financed three and the Los Angeles Flood Control District has financed 28, three of them jointly with the City.

An itemized list of the projects may be found in the appendix. As a matter of interest, however, the following projects are described specifically:

AESTHETICS:

As a part of the Bull Creek underground flood control project from Knollwood Drive to Rinaldi Street, the District provided the means, whereby low-flows were delivered to the ground surface, to simulate a natural stream. Rocks and boulders were added together with native ground covers and numerous trees.

CONSERVATION:

Two projects have been in connection with historical preservation. On the East Canyon Channel, landscaping, including trees and slump stone, and architectural treatment were provided by the Flood Control District to commemorate the location of a historic rubble dam constructed by Mission Indians to serve the San Fernando Mission vineyards. A plaque was installed by the Daughters of the Golden West. The Arroyo Seco Channel, adjacent to Heritage Square, was provided with an irrigation system, trees, and shrubs at an approximate cost to the District of $12,525.

LAND USE:

The multiple use of the open space provided by flood control basins and channels is highly desirable in many instances. The City of Los Angeles Department of Recreation and Parks operates 5,500 linear feet of equestrian trail on the south side of the Los Angeles river between Mariposa Street and Riverside Drive and utilizes approximately 500 linear feet of the Limekiln debris basin area to carry equestrians beneath the Chatsworth Street Bridge. The Los Angeles County Department of Beaches operates approximately 800 linear feet of bicycle trail from Vista Del Mar to the Pacific Avenue Bridge along Ballona Creek.

As part of the Brown's Creek flood control project, the District installed bicycle, hiking, and equestrian trails and more than $110,000 in landscaping and irrigation systems. The largest project involving multiple use so far, the Tujunga Wash greenbelt, including an irrigation system, landscaping, hiking, and bicycle trails, was constructed by the District and the U.S. Army Corps of Engineers from Chandler Boulevard to Oxnard Street at a cost to the District of one-half the total cost of $400,000. (34)

AESTHETICS:

The very nature of our business is such that there are few environmental problems created by our operations. However, during the last few years there have been some opportunities for us to improve the environment, primarily in the area of aesthetics.

The Gas Company previously used large above ground holders for natural gas storage. There were several of these gas holders located around the Los Angeles area, the largest within sight of City Hall. A program to remove these unsightly tanks and use only underground storage facilities was begun in the early 1970's and has now been completed.

The Gas Company has an on-going program of landscaping and, otherwise, beautifying above ground facilities (gas wells, compressor stations, etc.) so that they will blend harmoniously with their surroundings. To exemplify this, during 1976, the Gas Company won an award from Los Angeles Beautiful, Inc. for the beautification of well sites at Playa del Rey. The gas wells were enclosed in architecturally designed structures and the surrounding area was landscaped to look like a mini park.

The Gas Company has continued to participate in the "City Beautiful" program, the purpose of which is to plant trees along the main streets in the central Los Angeles area.

CONSERVATION:

Natural gas conservation is of vital concern to the Gas Company, and during the past few years, we have increased our efforts to educate consumers on conservation methods. As part of our conservation program, we have developed our Voluntary Load Reduction Plan. This plan is designed to encourage all customers to voluntarily use natural gas in the most prudent and efficient manner and to eliminate all wasteful, inefficient and non-essential uses in order to help stretch our existing gas supplies.

PROGRAMS:

In addition, we are participating in several research projects aimed at conserving our existing gas supplies. While these projects are not confined to the City of Los Angeles and have not made a direct impact on the environment in the City of Los Angeles to date, we feel that they represent progress in environmental improvement and resource conservation. We believe these projects will result in a significant reduction in natural gas consumption in future years thoughout our service area and that the concept will be particularly applicable in the Los Angeles metropolitan area. Following is a brief description of these projects:

Fuel Cell

The natural gas fuel cell produces electricity at the point of use. This results in less pollution, as well as reduced natural gas consumption. In one experimental project, a 16 unit apartment building which had previously utilized the "balanced power" concept, was equipped with a fuel cell installation. The fuel cell used approximately 83% of the natural gas used with the "balanced power" concept, and satisfied all energy needs previously satisfied by both natural gas and electricity. The fuel cell is expected to be commercially available in about five years.

SAGE (Solar Assisted Gas Energy)

SAGE is an evolving system for combining the efficient use of natural gas with solar energy to heat water. A variation of this system can be used for space heating. SAGE is a joint research effort among the National Science Foundation, Southern California Gas Company and California Institute of Technology. Other Federal agencies participating are the Federal Energy Administration and Energy Research and Development Administration. The Federal government and the Gas Company believe solar energy has great potential for easing future problems of

energy supply consistent with environmental standards. On the first experimental project, begun in 1975, the SAGE equipment was fitted to the existing hot water plumbing system in a 32-unit apartment building in El Toro, California. Initial results have been very favorable.

On the second project, begun in 1976, the SAGE system was installed in a new apartment complex while that complex was being built.

MED (Minimum Energy Dwelling)

The Minimum Energy Dwelling research is an energy conservation data gathering and demonstration effort sponsored jointly by the Federal government and private industry. The principle MED sponsors are the Federal Energy Research and Development Administration; Southern California Gas Company; and the Mission Viejo Company, Mission Viejo, California. The major goal is to reduce energy consumption in a typical Southern California home by at least 50%, and simultaneously to encourage the American building industry to adopt MED's energy-saving features.

MED uses available energy saving building techniques and materials along with advanced household appliances and a solar/natural gas central energy system for space heating, cooling, and water heating. MED is not a "twentyfirst century" home. Through data gathering, analysis, and demonstration, it is dedicated to fostering the construction of energy efficient homes in the not to distant future. The MED demonstration project was opened in Mission Viejo in October, 1976.

PROBLEMS:

By far, the most serious problem faced by the Gas Company, in its efforts to improve the environment, is the dwindling supply of natural gas and the frustration we must cope with in our efforts to bring in the new supplies. Because natural gas is the

cleanest burning of all fossil fuels, we feel the Gas Company can make the greatest contribution to a clean and healthy environment by having a sufficient supply of gas to deliver a high level of service to our interrruptible industrial customers, and thus reduce the need for alternate fuels. Since 1969, when the Gas Company foresaw the inability of its suppliers to provide for Southern California's continuing need for gas, we have engaged in an aggressive program to acquire gas supplies from new sources. This program includes liquified natural gas projects involving potential shipments of gas from South Alaska and Indonesia, and our efforts to bring in natural gas from Northern Alaska by pipeline. Some of these projects were scheduled to be on line by now, but as a result of regulatory delays and obstructions, the very earliest we can expect supplies from any of these projects is 1979, when we can begin receiving LNG from South Alaska. This is a full ten years after the inception of the project. During this period, the level of service to our interruptible industrial customers has been declining and by 1979 we may have to curtail firm customers. (35)

The seriousness of the situation is illustrated by the following table:

Year	Level of Service to Interruptible Customers
1970	84%
1971	73%
1972	71%
1973	48%
1974	51%
1975	34%
1976 (est.)	18%
1977 (projected)	13%
1978 (projected)	4%
1979 (projected)	3%

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
(SCRTD)

Since 1973, the Rapid Transit District has been able to attract over a 69% increase in its patronage. Daily weekday patronage now approaches 1.1 million boardings. This translates into almost 800,000 daily trips being made in high-occupancy transit vehicles rather than by private, individual vehicles.

Some of the SCRTD's maintenance facilities date back to the turn of the century. Over $14 million has been spent in the last four years to modernize and upgrade existing facilities, both to improve the compatability of these facilities with the community and to increase the efficiency of transit operations. Even greater amounts of capital improvements are committed in the next several years. A major new maintenance yard was recently completed in El Monte at a cost of over $2.5 million; two major, new facilities are to be built in the San Fernando Valley and construction has already started on a new maintenance yard in Hollywood.

AIR:

Since the late '50's, when the MTA began "Operation Clean Air" and Asbury Transportation bought a group of 51-passenger propane coaches, metropolitan Los Angeles transit operators have taken an active interest in air quality. The District has inherited this concern from these predecessor operators.

In 1969, for instance, RTD diesel technicians independently developed an improved "low sac" needle injector for its diesel engines which greatly reduces the introduction of smoke in the engine's exhaust. LSN injectors are now standard manufacturers' equipment for all transit coaches. To further reduce smoke, the RTD has maintained the policy of burning only Number One grade diesel fuel rather than burn the cheaper, dirtier Number Two grade.

Early in 1970, the District undertook a program to rapidly replace its vacuum tube mobile radios with recently developed solid state units. Because of their high battery drain, vacuum tube radios required bus drivers and field supervisors to keep their engines running whenever their radios were on; new radio equipment made possible reductions in exhaust emissions and unnecessary fuel consumption.

The District has installed major recovery systems on each of its 12 gasoline storage tanks. Vapors formerly spewed into the air when truck deliveries were made are now pumped back into the truck; as soon as the appropriate technology is approved, vapors that are now expelled in the filling of vehicle fuel tanks will also be captured.

The availability of no-lead gasoline in 1971 also made possible another RTD decision: all RTD gasoline-powered vehicles and equipment are required to operate on no-lead or low-lead gasoline.

CONSERVATION:

In its bus washing and cleaning operations, the District is also making substantial improvements. At our most recently completed maintenance division, the wet scrubbers on the bus vacuums have been replaced by a dry "cyclone" process, greatly reducing water consumption. Similarly, new bus washers incorporate a re-cycling system that filters and re-uses water for all but the final rinse. Detergent use has now been trimmed to less than 2 1/2 ounces of a bio-degradable compound per bus.

LAND USE:

In 1971, work began on the 11-mile El Monte busway in the right-of-way of the San Bernardino Freeway. Completed early in 1976 at a cost of $60 million, the busway includes on-line stations at the County General Hospital and the campus of Cal State Los Angeles. Downtown, access to the busway is speeded by an exclusive contra-flow lane for buses on Spring Street. Access to the community is aided by special overhead ramps connecting the busway with Del Mar Boulevard.

At the El Monte terminal, facilities for park-and-ride patrons were recently doubled to provide more than 1,400 spaces. Additional television cameras that will allow the terminal dispatcher to speed the berthing of buses are now being considered; special platform modifications for double-deck buses have recently been completed. The busway currently experiences peak traffic loads in excess of 4,200 persons per hour with daily patronage approaching 19,000 persons.

NOISE:

In the past three years, the District has also acted to improve the visual and acoustic isolation of its operations from adjacent land uses. Over three-quarters of a mile of sound walls have been put in place around District maintenance facilities. Wherever possible, perimeter areas are now professionally landscaped; and, to conserve water, new landscaping projects utilize underground trickler irrigation rather than sprinkler sprays.

PROGRAMS:

The SCRTD was a most active participant in the experimental steam bus program, which also got underway in 1970. Although the available technology proved to be too primitive and unreliable for transit operations, steam engines held promise for reducing exhaust emissions over that of diesel engines.

In 1971, the RTD and the Atomics International division of the North American Corporation undertook a program to develop an advanced catalytic muffler for diesel engines. (An earlier design by GMC had proven to have negligible effects upon exhaust pollutants). Unfortunately, the design's theoretical potentials have not yet been borne out in actual testing.

PROBLEMS:

In 1971, in association with Petrolane Corporation, a full-size transit coach used in Wilshire Boulevard service was converted to propane fuel on an experimental basis. Unfortunately, even the largest fuel tanks required refilling several times a day, making propane impractical for most transit uses in Los Angeles.

Compressed natural gas (CNG), and later propane, was used for the mini-bus fleet initially deployed downtown in 1971. All 60 of these buses will soon have converted to gasoline because it has not been feasible to build permanent propane fueling facilities at RTD's crowded, inner-city maintenance yards that satisfy state industrial safety standards.

RECOMMENDATION:

The Southern California Rapid Transit District's environmental objectives and recommendations are embodied in the following five policy statements adopted by its Board. They are to:

- Strive to maintain a high quality environment now and in the future, and take all actions necessary to protect and enhance the environmental quality of the region in which the District operates.

- Strive to ensure that the long-term protection of the environment shall be a guiding criterion in its decisions.

- Strive to enhance and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of the present and future generations.

- Strive to develop and maintain transit as a positive force, influencing and supporting desired development patterns in the Los Angeles urban region while improving environmental conditions.

- Require District staff at all levels to consider qualitative factors as well as economic and technical factors, long-term benefits and costs in addition to short-term benefits and costs, and to consider alternatives to proposed actions which may affect the environment.

To carry out these policies, on January 3, 1973, the RTD Board of Directors created the post of an independent Environmental Coordinating Officer to develop and implement actions that further the objectives of the District's environmental policy. (36)

CALIFORNIA
DEPARTMENT OF TRANSPORTATION

As of July 1, 1970 the California Department of Transportation (CAL TRANS) had constructed a total of 136.4 miles of freeways in the City of Los Angeles. In the ensuing years, as of January 1, 1976 another 12 miles had been constructed so that at that date 148.4 miles of freeways were operating. During this period some 180 acres of landscaping has been installed to beautify these transportation corridors.

NOISE:

It is the objective of the Department to reduce freeway traffic noise to specified standards on new construction and to achievable levels within practical and financial limits on existing freeways. Reduction of traffic noise at the source is the most effective control; therefore, the Department encourages and supports legislation to require reduction in motor vehicle noise as advances in the state of the art of motor vehicle engineering permit. It also encourages those who plan and develop land and the local governments controlling development or planning land use near known freeway locations to exercise their powers and responsibility to minimize the effect of vehicle noise and to locate land uses appropriately. Meanwhile, the Department of Transportation will locate, design, construct, and operate freeways to minimize the traffic noise reaching adjacent areas.

As of this date Caltrans has constructed, within the City of Los Angeles, approximately 7.7 miles of noise barriers at an estimated cost of $3 million. These barriers are located on Route 2 (Glendale Freeway), Route 5 (Golden State Freeway), Route 101 (Hollywood Freeway), Route 118 (Simi Valley/San Fernando Valley Freeway), and Route 405 (San Diego Freeway).

Due to uncertainty of budgeting and programming, it is difficult to identify proposed noise barriers to be constructed in the City of Los Angeles during the next few years. However, the 6-year Planning Program which was adopted by the California Highway Commission in October of 1976 includes approximately

$85 million for sound attenuation projects along existing freeways for all of District 7. School noise attenuation projects will have first call on these funds with the balance going to attenuation projects at other locations. In addition, new freeway construction projects, such as those planned for the Route 118 Freeway, will include noise attenuation facilities as part of the initial construction.(37)

The following is a tabulation of schools in the City of Los Angeles which have been, or will be, considered for noise attenuation as required by Section 216 of the Streets and Highways Code. This tabulation provides the name of the school, its location by State highway route and postmile, approximate cost of the work, the status of the work and the programmed year for construction:

SCHOOL NOISE ABATEMENT SCHEDULE (37)

Noise abatement work for the following schools is anticipated to be completed or construction underway before the 1977-78 fiscal year.

School	Route		Const. in $1000	Remarks
Hamilton H.S.	LA-10	7.8	56.8	School Dist. on Final Plans
Riggin	LA-60	3.8	210.9	School Dist. on Final Plans
Humphreys	LA-7	24.2	175.5	School Dist. on Final Plans
San Pedro	LA-10	16.0	191.5	School Dist. on Final Plans
Loretto Street	LA-11	26.0	24.7	Wall PS&E being prepared
Rio Vista & East Valley TMR	LA-101	11.0	185	School Dist. on Final Plans
Faith Lutheran	LA-11	15.4	132	Prelim. Proposal Complete
St. Mary	LA-5	17.5	500	Wall proposed
Marianna	LA-60	3.0	82	Proj. Rpt. for wall approved
St. Jerome	LA-405	24.3	190	Wall proposed
Reed Jr. H.S.	LA-101	12.4	473	PS&E for wall underway
Pacoima	LA-5	37.51	220	School Dist. on prelim. proposal

School	Route		Const. in $1000	Remarks
Second St.	LA-5	17.0	240	School Dist. on prelim. proposal
Lorena St.	LA-5	15.7	128	Proj. Rpt. for wall at HQ
Dorris Pl.	LA-5	21.5	120	Wall Study complete
Campbell Hall	LA-101	12.9	292	Prelim. Readings
Our Lady of Lourdes	LA-60	2.3	500	Prelim. Readings

Construction at the following schools is scheduled for 1978-79 fiscal year:

School	Route		Const. in $1000	Remarks
Marvin Ave.	LA-10	9.6	295	Proj. Rpt. at HQ
Sharp Ave.	LA-5	38.1	103	Wall Study in progress
Allesandro	LA-5	22.5	140	Wall Study complete
Hesby	LA-405	39.3	259	Proj. Rpt. at HQ
Santa Teresita	LA-10	19.2	500	Prelim. Readings
Soto St.	LA-5	16.9	162	Special Legis. - Need Coop. agreement
West Vernon	LA-11	19	360	Wall Study in progress

Construction at following schools is scheduled for 1979-80 fiscal year:

School	Route		Const. in $1000	Remarks
Webster Jr. H.S.	LA-10	5.3	396	Prelim. Readings
Egremont	LA-101	19.7	224	Prelim Readings
Danube Ave.	LA-405	47.3	34	
Verna Ave.	LA-5	37.1	180	
Bassett	LA-405	42.0	216	
Sophia	LA-10	13.5	195	

Construction at following schools is scheduled for 1980-81 fiscal year:

School	Route		Const. in $1000	Remarks
San Fernando H.S.	LA-5	39.7	288	
Bushnell Way	LA-11	28.4	18	
St. Teresa of Avila	LA-2	14.2	500	Prelim. Readings
Gardena	LA-11	10.5	250	
61st St.	LA-11	17.9	253	
Jackson H.S.	LA-60	1.0	252	
Ford Blvd.	LA-7	23.5	56	

Construction at following schools is scheduled for 1981-82 fiscal year:

School	Route		Const. in $1000	Remarks
Solano Ave.	LA-11	25.1	144	Prelim. Readings
Clifford St.	LA-2	14.0	180	
Irving Jr. H.S.	LA-2	16.2	360	
Evans Com. Adult School	LA-11	23.8	26	

Construction at following schools is scheduled for 1982-83 fiscal year:

School	Route		Const. in $1000	Remarks
St. Turibius	LA-10	17.0	500	Prelim. Readings
Cortez St.	LA-101	2.1	144	
Van Deene	LA-11	7.5	100	
Tarzana	LA-101	22.0	396	
Valley View Elem.	LA-101		50	
Cheremoya Ave.	LA-101		50	
Charnock Rd.	LA-405		125	

ACKNOWLEDGMENTS

We wish to thank all the agencies and individuals who have participated in the making of this report.

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The Editor

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Los Angeles County Flood Control Projects in the City of Los Angeles

Item 1 - Los Angeles River (Recreation Permit)

The City of Los Angeles Department of Recreation and Parks operates 5,500 linear feet of equestrian trail on the south side of the river between Mariposa Street and Riverside Drive.

Item 2 - Limekiln Debris Basin (Recreation Permit)

The City of Los Angeles Department of Recreation and Parks utilizes approximately 500 linear feet of the debris basin area to carry equestrians beneath the Chatsworth Street Bridge.

Item 3 - Ballona Creek (Recreation Permit)

The Los Angeles County Department of Beaches operates approximately 800 linear feet of bicycle trail from Vista Del Mar to the Pacific Avenue Bridge.

Item 4 - Los Angeles River (Landscaping - Fiscal Year 1970-71)

At an approximate cost of $37,000, the Flood Control District landscaped the south bank of the Los Angeles River adjacent to Valleyheart Drive from Whitsett Avenue to Radford Avenue. The landscaping consisted of an irrigation system and an assortment of plants, mainly Canary Island pine trees and oleander bushes.

Item 5 - Kelvin Channel (Landscaping - Fiscal Year 1970-71)

The Flood Control District landscaped the right of way adjacent to De Soto Avenue from Burbank Boulevard (north) to the Ventura Freeway. The landscaping consisted of an irrigation system and shamel ash trees at a cost of $14,204.

Item 6 - Blanchard and Blue Gum Debris Basins (Landscaping - Fiscal Year 1970-71)

The Flood Control District landscaped (irrigation system and screen planting) the above debris basins at a cost of $6,000±.

Item 7 - Los Angeles River (Landscaping - Fiscal Year 1971-72)

An irrigation system and screen planting were installed by the District adjacent to Valleyheart Drive from Cedros Avenue to Kester Avenue at an approximate cost of $13,000. An irrigation system and screen planting were also installed adjacent to Bassett Street from Owensmouth Avenue to Canoga Avenue at a cost of $7,361.

Item 8 - Calabasas Creek (Landscaping - Fiscal Year 1971-71)

An irrigation system and screen planting were installed by the District adjacent to Hatteras Street from Fallbrook Avenue to 300 feet upstream at a cost of $3,411.

Item 9 - Limekiln Debris Basin (Landscaping - Fiscal Year 1971-72)

An irrigation system and shrub planting were installed on the face of Limekiln Debris Basin. Irrigation and screen planting were also placed along Limekiln Canyon Road at a total cost of $20,625.

Item 10 - East Canyon Channel (Landscaping - Fiscal Year 1971-72)

Landscaping, including trees and slump stone, and architectural treatment were provided by the Flood Control District to commemorate the location of a historic rubble dam constructed by Mission Indians to serve the San Fernando Mission vineyards. A plaque was installed by the Daughters of the Golden West; District cost - $5,000±.

Item 11 - Arroyo Seco Channel (Landscaping - Fiscal Year 1971-72)

The channel adjacent to Heritage Square was provided with an irrigation system, trees, and shrubs at an approximate cost to the District of $12,525.

Item 12 - Compton Creek (Landscaping - Fiscal Year 1971-72)

The intersection of Compton Creek and Imperial Highway was landscaped with an irrigation system, screen planting, and architectural treatment. This work was performed as part of the Model Neighborhood Program at an approximate cost to the District of $50,000.

Item 13 - Los Angeles River (Landscaping - Fiscal Year 1972-73)

Irrigation systems and landscaping were provided from Van Nuys Boulevard to Woodman Avenue and from Moorpark Street to Coldwater Canyon Avenue at an approximate cost of $71,000.

Item 14 - Sepulveda Channel (Landscaping - Fiscal Year 1972-73)

Landscaping and irrigation systems were installed at the intersection of Charnock Road, Culver Boulevard, Sawtelle Boulevard, and Sepulveda Boulevard at an approximate cost of $30,000.

Item 15 - Pacoima Spreading Grounds (Landscaping - Fiscal Year 1972-73)

A portion of the spreading grounds was landscaped by the District at an approximate cost of $10,000.

Item 16 - Santa Monica Canyon Channel (Landscaping - Fiscal Year 1973-74)

The District deposited $14,500 with the City of Los Angeles for a cooperative landscaping project along Amalfi Drive and East Channel Road.

Item 17 - Hansen Yard (Landscaping - Fiscal Year 1973-74)

The District's maintenance yard was landscaped at a cost of $4,000±.

Item 18 - La Tuna Canyon Lateral (Landscaping - Fiscal Year 1974-75)

Landscaping and irrigation were installed from Village Avenue to Wildwood Avenue and at the La Tuna Canyon Road crossing at an approximate cost of $36,000.

Item 19 - Caballero Creek (Landscaping - Fiscal Year 1974-75)

The District deposited approximately $24,000 with the City of Los Angeles for the landscaping of the channel from Ventura Boulevard to the Ventura Freeway.

Item 20 - Sawtelle Channel (Landscaping - Fiscal Year 1974-75)

Landscaping was installed at the Palms Boulevard crossing at a cost of $5,000±.

Item 21 - Storm Drain Bond Issue Project No. 5216, Los Angeles - East Valley-Haskell-Devonshire (Landscaping - Fiscal Year 1974-75)

The crossings at Hayvenhurst Avenue and Lassen Street were landscaped at a cost of $13,500±.

Item 22 - Tujunga Wash (Landscaping and Recreation - Fiscal Year 1974-75)

A greenbelt, including an irrigation system, landscaping, hiking, and bicycle trails, was constructed by the District and the U.S. Army Corps of Engineers from Chandler Boulevard to Oxnard Street at a cost to the District of one-half the total cost of $400,000.

Item 23 - Storm Drain Bond Issue Project No. 88, Sepulveda Boulevard Drain (Landscaping - Fiscal Year 1975-76)

The right of way along Parthenia Street was landscaped at a cost of $21,000±.

Item 24 - Pacoima Wash (Landscaping - Fiscal Year 1975-76)

The crossing at Parthenia Street was landscaped at a cost of $16,000±.

Item 25 - Santa Monica Canyon Channel (Landscaped - Fiscal Year 1975-76)

The District deposited $14,500 with the City of Los Angeles for a cooperative landscaping project along Sunset Boulevard at Allenford Avenue.

Item 26 - Sepulveda Channel (Landscaping and Recreation - Fiscal Year 1975-76)

Landscaping was installed at the channel intersection of Venice Boulevard and McLaughlin Avenue at a cost of $4,500±.

Landscaping in the form of garden plots was installed at Braddock Drive to be operated by Metropolitan Neighborhood Gardens and Farms, Inc. at a cost of approximately $29,500.

Item 27 - Mandeville Canyon (Flood Control - Fiscal Year 1971-72)

The District, the City of Los Angeles, and the Mandeville Canyon Property Owners Association each contributed $10,000 toward landscaping above the underground storm drain adjacent to Mandeville Canyon Road between Chalon Road and Sunset Boulevard.

Item 28 - Ballona Creek (Flood Control - Fiscal Year 1972-73)

The District provided extensive landscaping adjacent to Unit 2 of this project from Fairfax Avenue to Cochran Avenue.

Item 29 - Browns Creek (Flood Control - Fiscal Year 1972-73)

As part of the flood control project, the District installed bicycle, hiking, and equestrian trails and more than $110,000 in landscaping and irrigation systems.

Item 30 - Bull Creek (Flood Control - Fiscal Year 1972-73)

As part of this underground flood control project from Knollwood Drive to Rinaldi Street, the District provided the means, whereby low-flows were delivered to the ground surface, to simulate a natural stream. Rocks and boulders were added together with native ground covers and numerous trees. The cost of landscaping was approximately $27,000.

Item 31 - Wilmington Drain (Flood Control - Fiscal Year 1975-76)

In lieu of the traditional concrete flood control channel, the District has begun the constuction of a natural swale which will form a greenbelt and wildlife sanctuary.

In addition to the above items, 11 flood control channels have been constructed utilizing General Funds at an approximate cost of $26 million and 95 storm drains projects constructed utilizing Bond Issue Funds at an approximate cost of $87,500,000.

Ordinance No. 143,565

An ordinance amending Division 8 of the Los Angeles Administrative Code by adding Chapter 5 thereto relating to the establishment of a Department of Environmental Quality.

THE PEOPLE OF THE CITY OF LOS ANGELES DO ORDAIN AS FOLLOWS:

Section 1. Division 8 of the Los Angeles Administrative Code is hereby amended by adding Chapter 5 thereto, said new chapter to read.

CHAPTER 5
DEPARTMENT OF ENVIRONMENTAL QUALITY
ARTICLE 1
ORGANIZATION OF THE DEPARTMENT, BOARD, AND ADVISORY COMMITTEES

Sec. 8.100.1. Designation of the Department.

There is hereby created within the government of the City of Los Angeles a department to be known as the "Department of Environmental Quality," hereinafter referred to as the "Department." Said Department shall be under the management and control of a General Manager.

Sec. 8.100.2. Designation of the Board.

There is hereby created a board in the government of the City of Los Angeles known as the Board of Environmental Quality Commissioners and hereinafter referred to in this chapter as the "Board."

Sec. 8.100.3. Composition of the Board.

The Board shall be composed of five persons who are qualified electors of the City of Los Angeles. Each member shall be appointed by and may be removed by the Mayor, subject in both appointment and removal to the approval of the Council by majority vote of the entire membership thereof. The members of the Board shall be exempt from all civil service provisions and shall be persons with a specific expertise in a field relating to environmental quality or persons who have demonstrated an interest in and awareness of environmental problems as those problems affect the quality of life in this city.

Persons appointed to be Board members shall neither have, nor acquire during their term of office if confirmed, any interests which are prohibited under the Charter of the City of Los Angeles or by state or federal law.

Sec. 8.100.4. Terms of Members of the Board.

The term of office for each member of the Board, except for the original Board, shall be five years and shall begin with the first day of July of the respective years. The terms of office shall be so designated at the time of appointment that the term of office of one member shall expire each year. An appointment to fill an unexpired term on the Board shall be for the period of the unexpired term.

Sec. 8.100.5. Meetings and Compensation.

The members of the Board shall be paid ten dollars ($10.00) per meeting attended, not to exceed one hundred dollars ($100.00) per calendar month.

Sec. 8.100.6. Capacity of the Board.

The Board shall have and exercise such powers and duties as are hereinafter set forth:

(A) To act in an advisory capacity to the Department.

(B) To make reports together with recommendations to the Mayor and City Council for action on environmental issues facing the City.

(C) To conduct public hearings to assist in achieving the objectives of this ordinance.

(D) To make recommendations and comments to the Mayor and City Council on any report submitted to it by the Department if desired.

Sec. 8.100.7. Advisory Committees.

The Department may establish as many advisory committees composed of as many persons as it may deem necessary to provide technical expertise and advice to the Board and to the General Manager in fields of endeavor directly related to varying environmental specialties. The members of the technical advisory committees shall be appointed by the Board of the Department and the General Manager; however, the members of the Board shall be ex-officio members of all technical advisory committees. Members of the advisory committees shall not become officers or employees of the City of Los Angeles by reason of such membership. The duration of a specific technical advisory committee and the terms of its members is subject to the determination of the Board.

Sec. 8.100.8. Appointment and Removal of the General Manager.

The General Manager shall be appointed by the Mayor, subject to confirmation by a majority vote of the City Council and may be removed upon specified cause by the Mayor subject to the approval of the City Council by a majority vote all subject in both appointment and removal to the provisions of the Charter.

Sec. 8.100.9. Duties and Powers of the General Manager.

The General Manager of the Department as the Chief Administrative Officer of the Department, shall:

(A) Have full charge and control of all work, duties and powers of the Department.

(B) Be responsible for the proper administration of its affairs.

(C) Appoint, discharge, suspend or transfer all employees of the Department, all subject to the Civil Service provisions of the Charter.

(D) Issue instructions to said employees in the line of their duties.

(E) As authorized by ordinance, assign such employees of the Department as are required for the carrying out of the powers and duties of the Board.

(F) Provide such technical assistance and information as is requested in writing by the Board.

(G) Prior to the beginning of each fiscal year submit an annual budget covering the anticipated revenues and expenditures of the Department; including therein, pursuant to the instructions of the Board, the money required for the proper conduct of its affairs; conforming, so far as practicable, to the forms and dates provided in the Charter in relation to the general city budget.

(H) Expend the funds of the Department in accordance with the provisions of the budget appropriations made subsequent to the budget, including those appropriated for the Board.

(I) Have the power to make slight modifications in individual cases from environmental standards established by ordinance for which the Department has been specifically assigned responsibility for enforcement, provided that in each such modification the General Manager shall first find and determine that the action is required to prevent an unreasonable hardship under the facts of the case and that such modification is, in conformity with the general spirit and intent of the requirements involved.

(J) Keep the Board informed as to the affairs of the Department, and the Board shall be so informed at public meetings of the Board.

(K) Exercise such further powers as may be conferred upon him.

ARTICLE 2
DUTIES AND POWERS OF THE DEPARTMENT

Sec. 8.101.1. Duties and Powers.

The Department shall have the following duties and powers:

(A) Develop goals, policies, and programs for the protection and improvement of the City's environmental quality.

(B) Study policies, practices, and programs at all city, county, regional, state, or federal agency levels that relate significantly to the City's environmental quality, and identify significant environmental quality problems and recommend to the Mayor and Council possible solutions thereof.

(C) Represent the environmental interests of the City, as defined by ordinance, before other governmental agencies.

(D) Formulate standards for the preservation and enhancement of the quality of the City's environment which will not be in conflict with the general laws, such standards to become effective upon the approval and adoption thereof by ordinance.

(E) Submit annually a "State of the City's Environment" report, together with recommendations, to the Mayor and City Council; such report to include the status of efforts to improve the environment together with recommendations.

(F) Furnish to City officers, departments, and bureaus and to institutions and individuals advice and information useful in preserving and enhancing the quality of the City's environment.

(G) Cause to be enforced those elements of the environmental program for which the City has jurisdiction and for which the Department has been specifically assigned responsibility.

(H) To receive and review complaints of the public concerned with matters of environmental quality in the City of Los Angeles.

(I) To exercise such further powers and duties as herein or elsewhere provided.

Sec. 8.101.2. Implementation.

A. Implementation Outside of City Government

1. To the extent it may legally do so, the Department shall investigate the activities of persons, corporations, or governmental agencies other than the City which are causing, or if allowed to continue, or to commence, it is believed would cause a significant effect upon the quality of the environment of the City. A public hearing presided over by the General Manager of the Department may be included as a part of said investigation.

2. Upon completion of said investigation and the formulation of a written report thereon, the Department shall immediately invite the active participation of said person, corporation, or governmental agency in a review of said report and in correction of that condition, if such be the case, which it is determined therein to result in a significant adverse effect upon the City's environment.

3. In the event no meaningful progress is made or commenced or no cooperative participation is effected within ten calendar days thereof to abate the activity or to regulate it so as to abate its adverse effect, the Department shall submit to the Board and the Board after review thereof and any comment it wishes to make thereon, shall immediately submit said report, as commented upon if such be the case, to the City Council. In the event the Department believes the activities investigated give rise to a cause of action at law or in equity or a special proceeding in favor of the City and that successful prosecution thereof would result in a significant contribution to the protection and enhancement of the quality of the City's environment, it shall make specific findings to such effect, attach said findings and recommendations to said report, and forward all said documents to the City Council together with the comments, if any of the Board for whatever action may be deemed necessary.

4. In the event the means to abate the activity or its adverse effect are beyond the jurisdiction of the City, the Department shall propose and make recommendation to the City Council for incorporation into its legislative advocacy program such provision as it may deem necessary to effect said objective.

B. Implementation Within City Government

1. The Department shall investigate and review those policies, practices, projects, activities and programs of each office, bureau, or department within the City which it deems have a significant adverse effect upon the quality of the City's environment, and shall submit a report thereon to both the Mayor and the City Council as well as to the office, bureau or department involved. Said report shall include findings and any recommendations of possible alternatives to current policies, practices, projects, activities or programs which the Department believes would not have such an adverse effect on the quality of the environment and which the affected office, bureau, or department could reasonably adopt along with or in lieu thereof.

(a) In addition to said investigation and report, the Department, subject to Part B.1. (b) hereof, shall have the power to issue and serve written stop orders against projects or activities of City department, offices, or bureaus deemed by it to be adversely affecting to a significant degree the preservation and enhancement of the quality of the City's environment.

(b) In no event shall a stop order be issued or served which prevents or limits a department, office, or bureau of the City from performing duties imposed upon it by the Charter or state or federal law, or which may abrogate existing contracts of the City.

2. In the event a stop order is issued by the Department, a copy thereof shall immediately be forwarded by the Department to the City Clerk with a detailed report thereon, and the City Clerk shall immediately upon the receipt thereof place said matter upon the Council agenda for hearing. The City department, office or bureau involved with the project or activity to which said stop order applies may file with the City Council a report which sets forth whatever information it deems necessary to disprove the need for such stop order and to prove the existence of one or more of the following conditions:

(a) That the activity or project involved does not significantly affect the preservation and enhancement of the quality of the City's environment;

(b) That the activity or project involved is required to serve a public purpose and that there are no alternative and less environmentally detrimental methods, policies, practices, or procedures which could reasonably be utilized to reduce the adverse effects on the quality of the City's environment; or

(c) That the activity or project involves a duty imposed by the Charter, federal, or state law or that compliance with the stop order would abrogate an existing City contract.

3. Upon receipt of a report from the Department and any other report on the project or activity involved, whether or not such reports are in conjunction with an existing stop order, the City Council may conduct a hearing thereon if, in its discretion, such is deemed necessary or advisable under the circumstances. At the conclusion of its review of the matter, and provided such does not abrogate existing contracts or violate federal or state law or violate or limit Charter-imposed requirements or duties, and if no stop order has already issued, the City Council may require or, in the case of proprietary departments, may request that said activity or project cease or that it be modified as directed within a specific and reasonable time limit, and may issue its own order to such effect.

4. a) The City Council may rescind a stop order issued by the Department, or may rescind its own order, only after making a written finding of the existence of at least one of the three conditions set forth in Part B. 2 above.

b) Any such action or rescission of a Department action issuing a stop order must be approved by a majority vote of the Council within 20 days after receipt of the file containing such Department action, and is subject to the approval or the veto of the Mayor within 10 days after the receipt by the Mayor of the file containing said Council action. If the Mayor fails to act within said time, the Council action shall be deemed approved, final and effective. If the Mayor vetoes the Council action, the Council within 10 days after receipt of the file and notice of veto from the Mayor may, by 2/3's vote of the Council, override said veto.

Sec. 8.101.3. Environmental Impact Statement.

Each City department, other than proprietary departments, and each city office, or bureau which intends to commence or to continue a project or activity which may have a significant effect upon the quality of the environment of this City, or which is otherwise requested by the City Council or by this Department to do so, shall prepare and file with this Department an environmental impact report thereon prior to commencing or further continuing with said project or activity.

The Department, subject to the approval of the Mayor and City Council, shall adopt guidelines for the preparation and submission of such environmental impact reports. These guidelines shall include a reasonable definition of what constitutes a City project or activity which may significantly affect the quality of the City's environment. Each officer or department required to file with this Department an environmental impact report pursuant to said guidelines shall include therein a statement of those foreseeable environmental effects which might reasonably be expected therefrom in the event the project or activity is implemented as planned, and such statement shall also include the comments of said officer, department, or bureau thereon and a detailed statement of any alternatives explored with respect thereto.

This Department shall, upon the request of any officer, other department, or bureau of the City assist in the preparation of any environmental impact report or any so-called "negative declaration" (negating the existence of any adverse environmental effect) required under state or federal law or regulations to be submitted to any grant-approving agencies of the state or federal government. A copy of each environmental impact report required to accompany or supplement any State of California Form IGR-1 ("Early Warning Form") or any grant-in-aid application to which said form applies, shall be submitted to this Department for its information and comment no less than ten working days prior to forwarding such form or application by an applicant city department to the State of California, any regional clearing house recognized for said purpose or any federal agency.

Sec. 8.101.4. Cooperation with Department of Environmental Quality.

All boards, officers, departments, and bureaus of the City shall cooperate with the Department in its efforts to protect and enhance the quality of the City's environment and, in particular, shall assist and cooperate with said Department and its investigations into activities or projects which may have a significant effect upon the quality of the City's environment, whether the activity or project being investigated is that of the particular office, department, or otherwise.

Sec. 2. The first paragraph of Section 22.186 of the Los Angeles Administrative Code is hereby amended to read as follows:

There is hereby created a General Plan Advisory Board which shall be composed of the Director of Planning, the Mayor, a member of the Council designated by the President of the Council, the City Administrative Officer, the City Engineer, the Executive Director of the Housing Authority, the Executive Director of the Community Redevelopment Agency, and the General Managers of each of the following departments; namely Building and Safety, Environmental Quality, Fire, Police (or the bureaus thereof), Public Utilities and Transportation, Recreation and Parks, Traffic, and Water and Power (or the bureaus thereof), together with such other officers of the City as the Mayor may from time to time designate.

Sec. 3. The City Clerk shall certify to the passage of this ordinance and cause the same to be published in some daily newspaper printed and published in the City of Los Angeles.

I hereby certify that the foregoing ordinance was introduced at the meeting of the Council of the City of Los Angeles, of June 7, 1972 and was passed at its meeting of June 14, 1972.

REX E. LAYTON, City Clerk,
By Charles J. Port, Deputy.

Approved June 21, 1972.

SAM YORTY, Mayor.

File No. 71-2565

(J31688C) June 30 1t

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Senior Clerk Stenographer

Carmela De La Torre
Programmed Typewriter Operator